

FAA FORM 8130-6, APPLICATION FOR U.S. AIRWORTHINESS CERTIFICATE

Form Approved O.M.B. No. 2120-0018
09/30/2007APPLICATION FOR
U.S. AIRWORTHINESS
CERTIFICATE

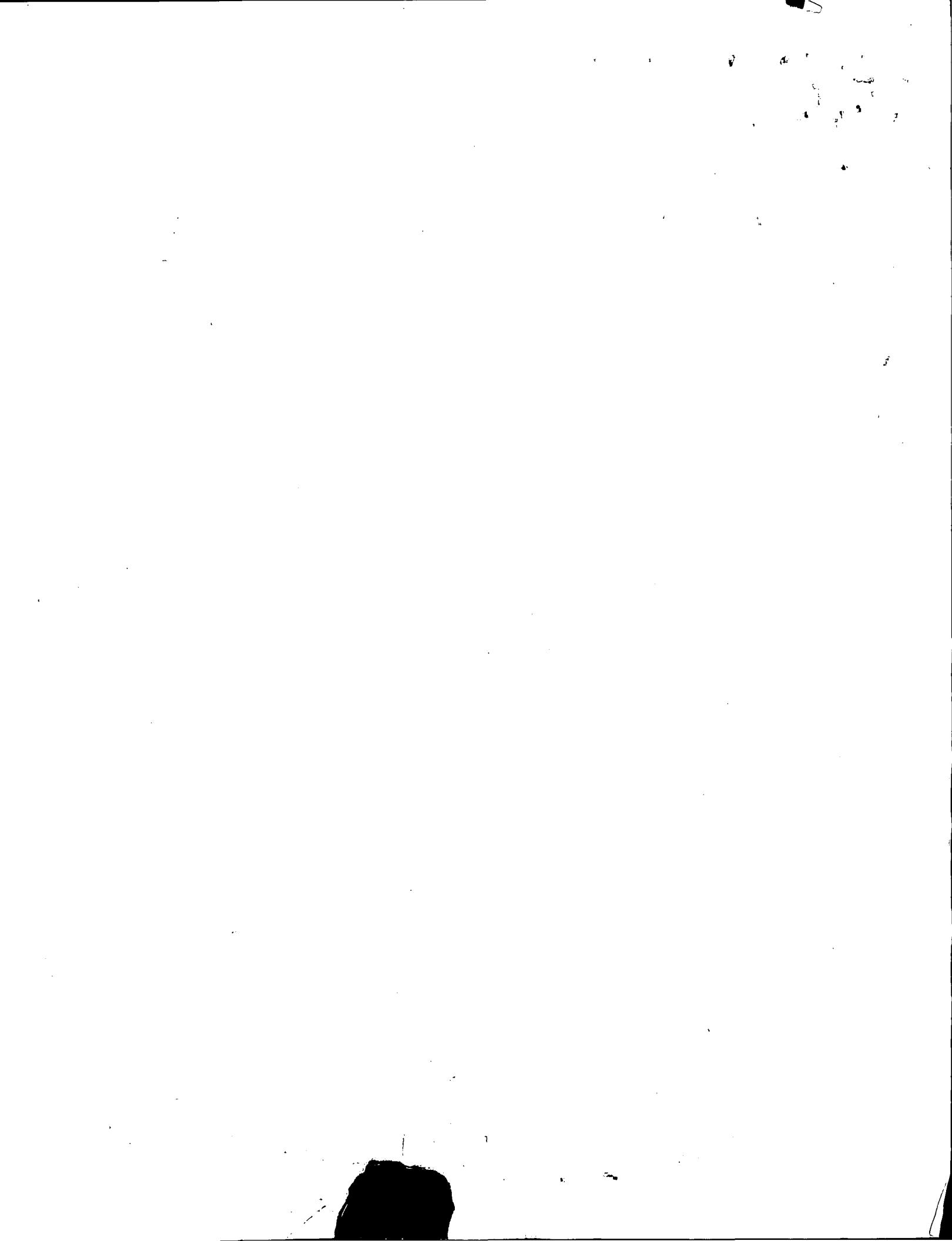
INSTRUCTIONS - Print or type. Do not write in shaded areas; these are for FAA use only. Submit original only to an authorized FAA Representative. If additional space is required, use attachment. For special flight permits complete Sections II, VI and VII as applicable.

I. AIRCRAFT DESIGNATION	1. REGISTRATION MARK N 20321	2. AIRCRAFT BUILDER'S NAME (Make) General Atomics Aero Sys Inc	3. AIRCRAFT MODEL DESIGNATION Warrior UWA-97000-1	4. YR. MFR. 2006	FAA CODING 0610009
	5. AIRCRAFT SERIAL NO. WA 001	6. ENGINE BUILDER'S NAME (Make) Thielert	7. ENGINE MODEL DESIGNATION Centurian 1.7 Modified	59301	
	8. NUMBER OF ENGINES One (1)	9. PROPELLER BUILDER'S NAME (Make) MT Muhlbauer	10. PROPELLER MODEL DESIGNATION MTV-6	11. AIRCRAFT IS (Check if applicable) IMPORT	

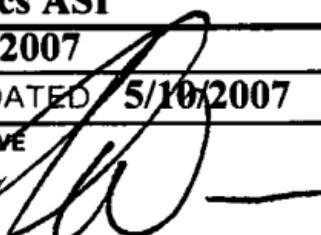
APPLICATION IS HEREBY MADE FOR: (Check applicable items)					
A	1	STANDARD AIRWORTHINESS CERTIFICATE (Indicate Category)		NORMAL	UTILITY
B	<input checked="" type="checkbox"/>	SPECIAL AIRWORTHINESS CERTIFICATE (Check appropriate items)		ACROBATIC	TRANSPORT
7	PRIMARY				
9	LIGHT-SPORT (Indicate Class)		AIRPLANE	POWER-PARACHUTE	WEIGHT-SHIFT-CONTROL
2	LIMITED				
5	PROVISIONAL (Indicate Class)		1 CLASS I		
3	RESTRICTED (Indicate operation(s) to be conducted)		2 CLASS II		
4			1 AGRICULTURE AND PEST CONTROL	2 AERIAL SURVEY	3 AERIAL ADVERTISING
0			4 FOREST (Wildlife Conservation)	5 PATROLLING	6 WEATHER CONTROL
1			0 OTHER (Specify)		
4	<input checked="" type="checkbox"/> EXPERIMENTAL (Indicate operation(s) to be conducted)		1 RESEARCH AND DEVELOPMENT	2 AMATEUR BUILT	3 EXHIBITION
8			4 AIR RACING	5 CREW TRAINING	6 MARKET SURVEY
0			0 TO SHOW COMPLIANCE WITH THE CFR	7 OPERATING (Primary Category) KIT BUILT AIRCRAFT	
8A				Existing Aircraft without an airworthiness certificate & do not meet § 103.1	
8B				Operating Light-Sport Kit-Built	
8C				Operating light-sport previously issued special light-sport category airworthiness certificate under § 21.190	
1	FERRY FLIGHT FOR REPAIRS, ALTERATIONS, MAINTENANCE, OR STORAGE				
2	EVACUATION FROM AREA OF IMPENDING DANGER				
3	OPERATION IN EXCESS OF MAXIMUM CERTIFICATED TAKE-OFF WEIGHT				
4	SPECIAL FLIGHT PERMIT (Indicate operation(s) to be conducted, then complete Section VI or VII as applicable on reverse side)		4 DELIVERING OR EXPORTING	5 PRODUCTION FLIGHT TESTING	
6	6 CUSTOMER DEMONSTRATION FLIGHTS				
C	6	MULTIPLE AIRWORTHINESS CERTIFICATE (check ABOVE "Restricted Operation" and "Standard" or "Limited" as applicable)			

A. REGISTERED OWNER (As shown on certificate of aircraft registration)			IF DEALER, CHECK HERE →		
NAME General Atomics - Aeronautical Systems Inc.			ADDRESS 16761 Via Del Campo Ct San Diego, Ca. 92127		
B. AIRCRAFT CERTIFICATION BASIS (Check applicable blocks and complete items as indicated)					
<input checked="" type="checkbox"/>	AIRCRAFT SPECIFICATION OR TYPE CERTIFICATE DATA SHEET (Give No. and Revision No.) Experimental		AIRWORTHINESS DIRECTIVES (Check if all applicable AD's are compiled with and give the number of the last AD SUPPLEMENT available in the biweekly series as of the date of application)		
AIRCRAFT LISTING (Give page number(s))			SUPPLEMENTAL TYPE CERTIFICATE (List number of each STC incorporated)		
C. AIRCRAFT OPERATION AND MAINTENANCE RECORDS					
<input checked="" type="checkbox"/>	CHECK IF RECORDS IN COMPLIANCE WITH 14 CFR Section 91.417	TOTAL AIRFRAME HOURS 44.3		3	EXPERIMENTAL ONLY (Enter hours flown since last certificate issued or renewed) 44.3
D. CERTIFICATION - I hereby certify that I am the registered owner (or his agent) of the aircraft described above, that the aircraft is registered with the Federal Aviation Administration in accordance with Title 49 of the United States Code 44101 et seq. and applicable Federal Aviation Regulations, and that the aircraft has been inspected and is airworthy and eligible for the airworthiness certificate requested.					
DATE OF APPLICATION 21 November 2007		NAME AND TITLE (Print or type) Gary Bender, Director Flight Operations		SIGNATURE 	

A. THE AIRCRAFT DESCRIBED ABOVE HAS BEEN INSPECTED AND FOUND AIRWORTHY BY: (Complete this section only if 14 CFR part 21.183(d) applies.)					
2	14 CFR part 121 CERTIFICATE HOLDER (Give Certificate No.)	3	CERTIFICATED MECHANIC (Give Certificate No.)	6	CERTIFICATED REPAIR STATION (Give Certificate No.)
5	AIRCRAFT MANUFACTURER (Give name or firm)				
DATE			TITLE		SIGNATURE
(Check ALL applicable block items A and B)			THE CERTIFICATE REQUESTED		
A. I find that the aircraft described in Section I or VII meets requirements for			4	AMENDMENT OR MODIFICATION OF CURRENT AIRWORTHINESS CERTIFICATE	
B. Inspection for a special permit under Section VII was conducted by:			<input checked="" type="checkbox"/>	FAA INSPECTOR	FAA DESIGNEE
			CERTIFICATE HOLDER UNDER		14 CFR part 65 14 CFR part 121 OR 135 14 CFR part 145
DATE 11-21-07	DISTRICT OFFICE NM-46	4	DESIGNEE'S SIGNATURE AND NO. LA-M100	FAA INSPECTOR'S SIGNATURE 	



UNITED STATES OF AMERICA
 DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION
SPECIAL AIRWORTHINESS CERTIFICATE

A	CATEGORY/DESIGNATION EXPERIMENTAL (UNMANNED AIRCRAFT)	
B	PURPOSE Research and Development, Crew Training or Market Survey	
C	MANU-FACTURER	NAME N/A
	ADDRESS	N/A
C	FLIGHT	FROM N/A
	TO	N/A
D	N- 20321	SERIAL NO. WA 001
BUILDER	General Atomics ASI	MODEL ERMP UWA-97000-1
E	DATE OF ISSUANCE 5/10/2007	EXPIRY 5/09/2008
OPERATING LIMITATIONS DATED 5/10/2007		ARE A PART OF THIS CERTIFICATE
SIGNATURE OF FAA REPRESENTATIVE	DESIGNATION OR OFFICE NO.	
	ANM-108L	

Any alteration, reproduction or misuse of this certificate may be punishable by a fine not exceeding \$1,000 or imprisonment not exceeding 3 years, or both. THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT IN ACCORDANCE WITH APPLICABLE FEDERAL AVIATION REGULATIONS.

A	This airworthiness certificate is issued under the authority of the Federal Aviation Act of 1958 and the Federal Aviation Regulations (FAR).
B	This airworthiness certificate authorizes the manufacturer named on the reverse side to conduct production flight tests, and only production flight tests, of aircraft registered in his name. No person may conduct production flight tests under this certificate: (1) Carrying persons or property for compensation or hire; and/or (2) Carrying persons not essential to the purpose of the flight.
C	This airworthiness certificate authorizes the flight specified on the reverse side for the purpose shown in Block A.
D	This airworthiness certificate certifies that, as of the date of issuance, the aircraft to which issued has been inspected and found to meet the requirements of the applicable FAR. The aircraft does not meet the requirements of the applicable comprehensive and detailed airworthiness code as provided by Annex 8 to the Convention On International Civil Aviation. No person may operate the aircraft described on the reverse side: (1) except in accordance with the applicable FAR and in accordance with conditions and limitations which may be prescribed by the Administrator as part of this certificate; (2) over any foreign country without the special permission of that country.
E	Unless sooner surrendered, suspended, or revoked, this airworthiness certificate is effective for the duration and under the conditions prescribed in FAR Part 21, Section 21.181 or 21.217.



AIRCRAFT MAINTENANCE RECORD

AIRCRAFT/EQUIPMENT S/N	FLIGHT #	ORIGINATOR	DISC	DATE	NCR #	FDR #
WA001	-	G. Farmer	I	11/20/07		

DISCREPANCY:

FAA Air Worthiness Inspection Required

CORRECTIVE ACTION:

I FIND THAT THIS UAS MEETS THE REQUIREMENTS FOR THE CERTIFICATION REQUESTED AND HAVE ISSUED A SPECIAL AIRWORTHINESS CERTIFICATE "EXPERIMENTAL."

DATED 11-21-07

THE NEXT CONDITION INSPECTION IS DUE: 11-20-08

SIGNED: *Robert J. Winn* ROBERT J. WINN ASI-LAM100

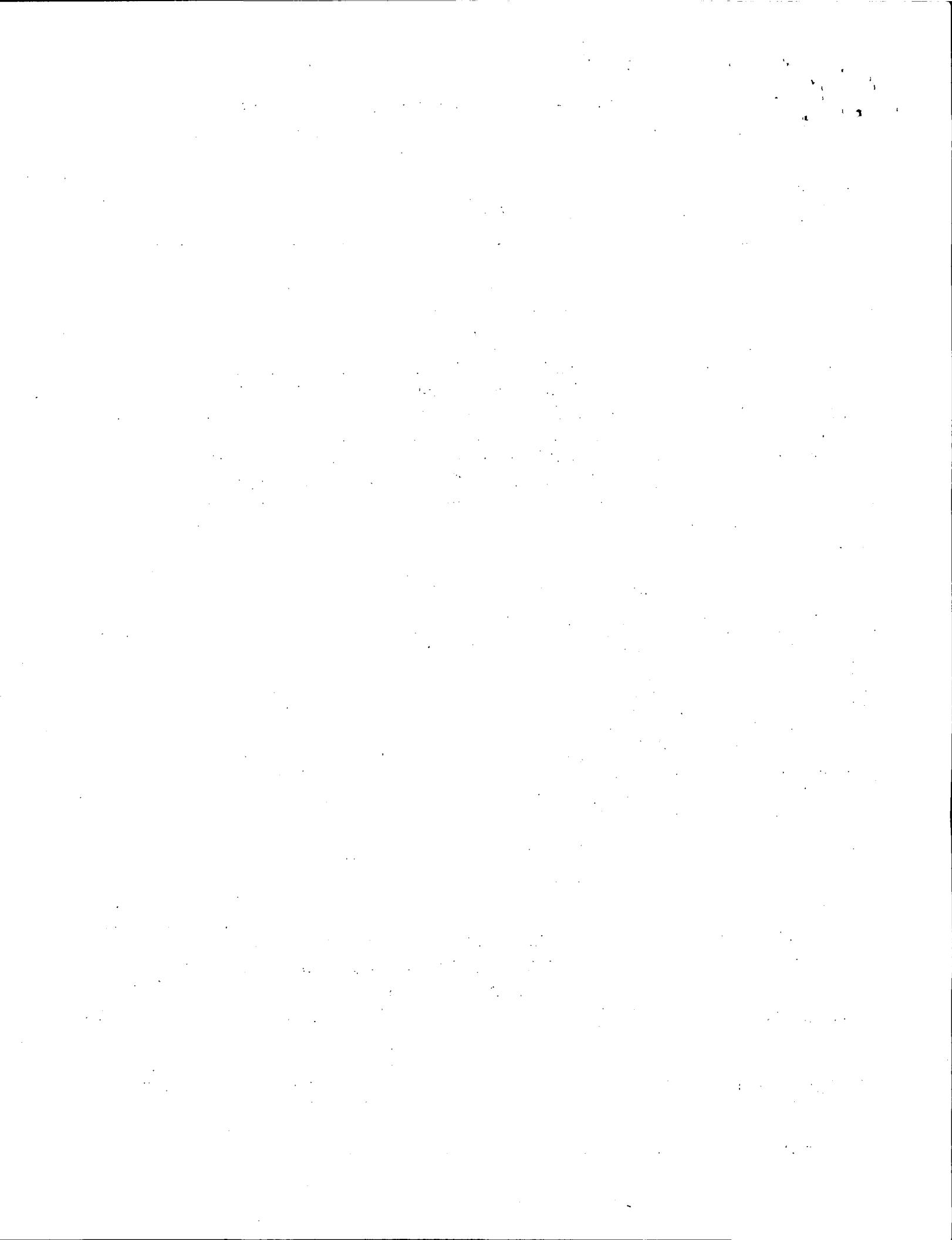
DISPOSITION:

UNITED STATES OF AMERICA DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION SPECIAL AIRWORTHINESS CERTIFICATE						
PAR	A	CATEGORY/DESIGNATION	EXPERIMENTAL (UNMANNED AIRCRAFT)			
	PURPOSE	Research and Development, Crew Training or Market Survey				HOURS/ CYCLES
A	MANU- FACTURER	NAME	N/A			
B		ADDRESS	N/A			
C	FLIGHT	FROM	N/A			
D		TO	N/A			
D	N-20321		SERIAL NO.	WA001		
E	BUILDER	General Atomics ASI	MODEL	ERMP UWA-97000-1		
	DATE OF ISSUANCE	11/21/2007	EXPIRY	11/20/2008		
	OPERATING LIMITATIONS DATED	11/21/2007	ARE A PART OF THIS CERTIFICATE			
E	SIGNATURE OF FAA REPRESENTATIVE	<i>Robert J. Winn</i>	DESIGNATION OR OFFICE NO.			
			ANM-108L			
Any alteration, reproduction or misuse of this certificate may be punishable by a fine not exceeding \$1,000 or imprisonment not exceeding 3 years, or both. THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT IN ACCORDANCE WITH APPLICABLE FEDERAL AVIATION REGULATIONS.						
FAA FORM 8130-7 (10/82) SEE REVERSE SIDE						

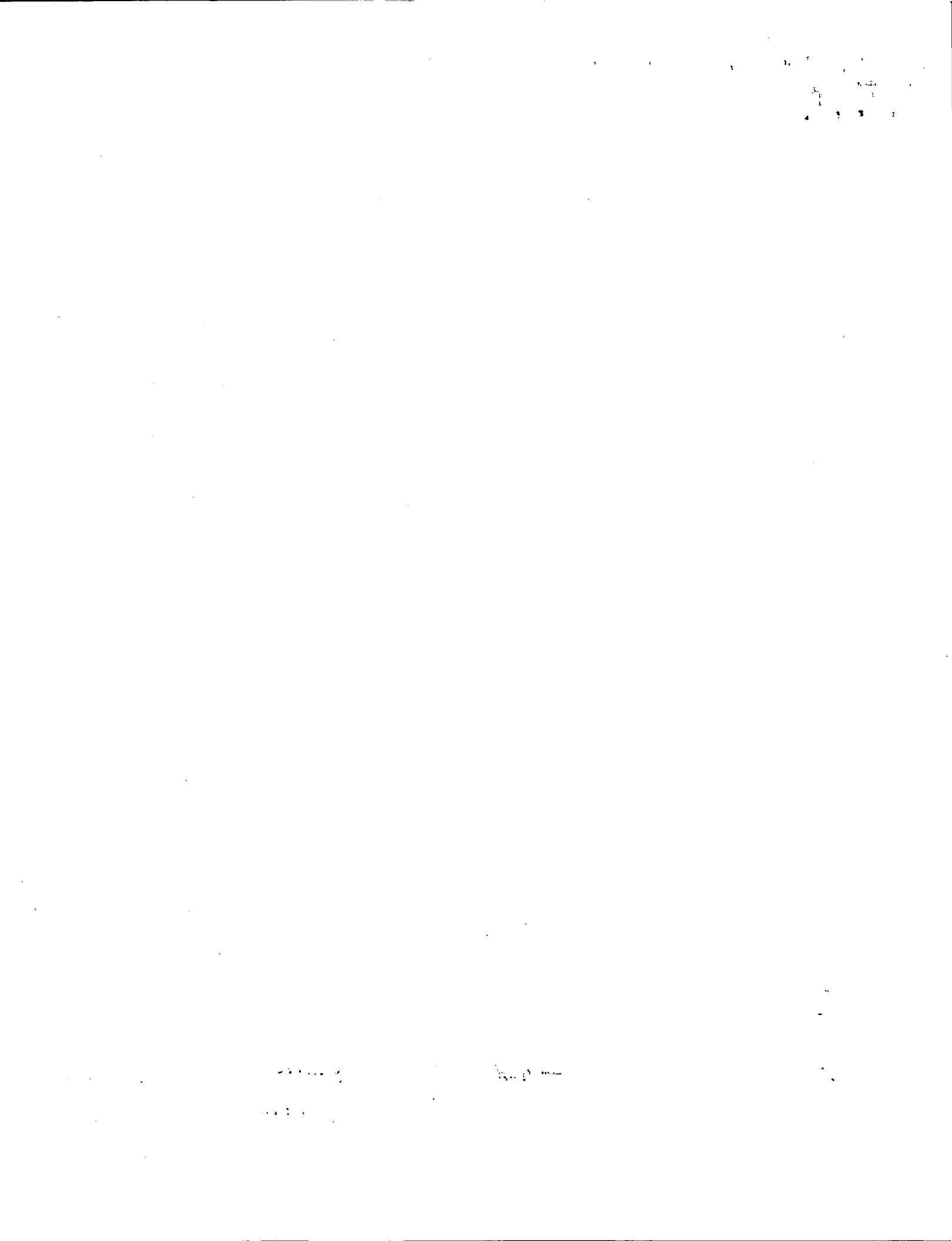
AVIONICS HOBBS PRE / POST 582.8 /	AIRCRAFT CLEARED FOR FLIGHT		ENGINE HOBBS PRE / POST 140.4 /
	TOOLS AND MAINTENANCE ITEMS ACCOUNTED FOR		

CORRECTED BY	EMPLOYEE NUMBER	DATE	INSPECTED BY	EMPLOYEE NUMBER

WORK ORDER #	PROJECT NUMBER	LOCATION		
SERIAL NUMBER	SYSTEM/REASON	UP	DOWN	PRTS #
129280	A/C	<input type="checkbox"/>	<input checked="" type="checkbox"/>	



VI. PRODUCTION FLIGHT TESTING	A. MANUFACTURER																
	NAME			ADDRESS													
	B. PRODUCTION BASIS (Check applicable item)																
		PRODUCTION CERTIFICATE (Give production certificate number) <input type="text"/>		→													
		TYPE CERTIFICATE ONLY															
		APPROVED PRODUCTION INSPECTION SYSTEM															
C. GIVE QUANTITY OF CERTIFICATES REQUIRED FOR OPERATING NEEDS																	
DATE OF APPLICATION		NAME AND TITLE (Print or Type)		SIGNATURE													
VII. SPECIAL FLIGHT PERMIT PURPOSES OTHER THAN PRODUCTION FLIGHT TEST	A. DESCRIPTION OF AIRCRAFT																
	REGISTERED OWNER			ADDRESS													
	BUILDER (Make)			MODEL													
	SERIAL NUMBER			REGISTRATION MARK													
	B. DESCRIPTION OF FLIGHT		CUSTOMER DEMONSTRATION FLIGHTS <input type="checkbox"/> (Check if applicable)														
	FROM			TO													
	VIA			DEPARTURE DATE		DURATION											
	C. CREW REQUIRED TO OPERATE THE AIRCRAFT AND ITS EQUIPMENT																
	PILOT		CO-PILOT	FLIGHT ENGINEER	OTHER (Specify)												
	D. THE AIRCRAFT DOES NOT MEET THE APPLICABLE AIRWORTHINESS REQUIREMENTS AS FOLLOWS:																
E. THE FOLLOWING RESTRICTIONS ARE CONSIDERED NECESSARY FOR SAFE OPERATION: (Use attachment if necessary)																	
F. CERTIFICATION – I hereby certify that I am the registered owner (or his agent) of the aircraft described above; that the aircraft is registered with the Federal Aviation Administration in accordance with Title 49 of the United States Code 44101 et seq., and applicable Federal Aviation Regulations; and that the aircraft has been inspected and is safe for the flight described.																	
DATE		NAME AND TITLE (Print or Type)			SIGNATURE												
<table border="0"> <tr> <td>A. Operating Limitations and Markings in Compliance with 14 CFR Section 91.9, as applicable.</td> <td>G. Statement of Conformity, FAA Form 8130-9 (Attach when required)</td> </tr> <tr> <td>B. Current Operating Limitations Attached</td> <td>H. Foreign Airworthiness Certification for Import Aircraft (Attach when required)</td> </tr> <tr> <td>C. Data, Drawings, Photographs, etc. (Attach when required)</td> <td>I. Previous Airworthiness Certificate Issued in Accordance with 14 CFR Section <u>521.191</u> CAR (Original Attached)</td> </tr> <tr> <td>D. Current Weight and Balance information Available in Aircraft <u>GCS</u></td> <td>J. Current Airworthiness Certificate Issued in Accordance with 14 CFR Section <u>521.191</u> CAR (Copy Attached)</td> </tr> <tr> <td>E. Major Repair and Alteration, FAA Form 337 (Attach when required)</td> <td>K. Light-Sport Aircraft Statement of Compliance, FAA Form 8130-15 (Attach when required)</td> </tr> <tr> <td>F. This inspection Recorded in Aircraft Records</td> <td></td> </tr> </table>						A. Operating Limitations and Markings in Compliance with 14 CFR Section 91.9, as applicable.	G. Statement of Conformity, FAA Form 8130-9 (Attach when required)	B. Current Operating Limitations Attached	H. Foreign Airworthiness Certification for Import Aircraft (Attach when required)	C. Data, Drawings, Photographs, etc. (Attach when required)	I. Previous Airworthiness Certificate Issued in Accordance with 14 CFR Section <u>521.191</u> CAR (Original Attached)	D. Current Weight and Balance information Available in Aircraft <u>GCS</u>	J. Current Airworthiness Certificate Issued in Accordance with 14 CFR Section <u>521.191</u> CAR (Copy Attached)	E. Major Repair and Alteration, FAA Form 337 (Attach when required)	K. Light-Sport Aircraft Statement of Compliance, FAA Form 8130-15 (Attach when required)	F. This inspection Recorded in Aircraft Records	
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U.S. Department
of Transportation
Federal Aviation
Administration

Los Angeles Manufacturing Inspection District Office
3960 Paramount Blvd.
Lakewood, CA 90712

EXPERIMENTAL - OPERATING LIMITATIONS
RESEARCH AND DEVELOPMENT, CREW TRAINING, or MARKET SURVEY

REGISTERED OWNER NAME: GENERAL ATOMICS AERONAUTICAL SYSTEMS, INC. (GA-ASI)	AIRCRAFT BUILDER: GENERAL ATOMICS AERONAUTICAL SYSTEMS
REGISTERED OWNER ADDRESS: 16761 VIA DEL CAMPO CT SAN DIEGO, CA 92127	YEAR MANUFACTURED: 2006
AIRCRAFT DESCRIPTION: FIXED WING, ERMP UNMANNED AIRCRAFT	AIRCRAFT SERIAL NUMBER: WA 001
AIRCRAFT REGISTRATION: N20321	AIRCRAFT MODEL DESIGNATION: ERMP UWA-97000-1
	ENGINE MODEL: Thielert Centurion 1.7 modified
	PROPELLER MODEL: Muhlbauer MT-6

The following conditions and limitations apply to all General Atomics Aeronautical Systems Inc (GA-ASI) Extended Range/Multi- Purpose (ERMP) flight operations while operating in the National Airspace System (NAS):

1. GENERAL

a. For the purposes of the **Special Airworthiness Certificate and Operating Limitations**, the ERMP Unmanned Aircraft System (UAS), owned and operated by GA-ASI, is considered to be an integrated system. The integrated system is composed of the ERMP aircraft, S/N: WA 001, unmanned aircraft (UA) pilot, UA control station(s) (fixed or mobile), telemetry, navigation and communications equipment. This equipment includes ground, air, and space based equipment that is used for control of the ERMP UA. The UAS also includes equipment on the ground and in the air that is used for communication with the chase aircraft and Air Traffic Control.



b. Unless otherwise specified in this document, the Pilot-in-Command (PIC) and GA-ASI shall comply with all applicable sections and parts of 14 CFR including, but not limited to, parts 61 and 91. Alternative methods of compliance with specific regulations shall be annotated in this document as required.

c. No person may operate this UAS for other than the purpose of Research and Development (R&D), crew training, or market surveys, to accomplish the flight operation outlined in GA-ASI Program Letter dated December 21, 2006, which describes compliance with §21.193(d), and has been made available to the pilot in command of the UAS. In addition, this UAS must be operated in accordance with applicable air traffic and general operating rules of part 91, and all additional limitations herein prescribed under the provisions of §91.319(e).

d. The PIC must determine that the UAS is in a condition for safe operation, and in a configuration appropriate for the intended purpose of the flight.

e. No person may operate this UA to carry property for compensation or hire.

f. This UA must be marked with its U.S. Registration number in accordance with 14 CFR part 45.

g. This UA must display the word "EXPERIMENTAL" in accordance with §45.23(b).

h. Prior to conducting the initial ERMP flight operations, General Atomics Aeronautical Systems, Inc. must forward a copy of the ERMP Program Letter, Special Airworthiness Certificate, and Operating Limitations to the FAA Western Service Area, Debra Trindle, Air Traffic Representative, at debra.trindle@faa.gov or via fax at 623-856-8339 (cover sheet required), addressed to FAA ATREP.

i. Section 47.45 requires that the FAA Aircraft Registry must be notified within 30 days of any change in the aircraft registrant's address. Such notification is to be made by submitting Form 8050-1 to AFS-750 in Oklahoma City, Oklahoma.

2. PROGRAM LETTER

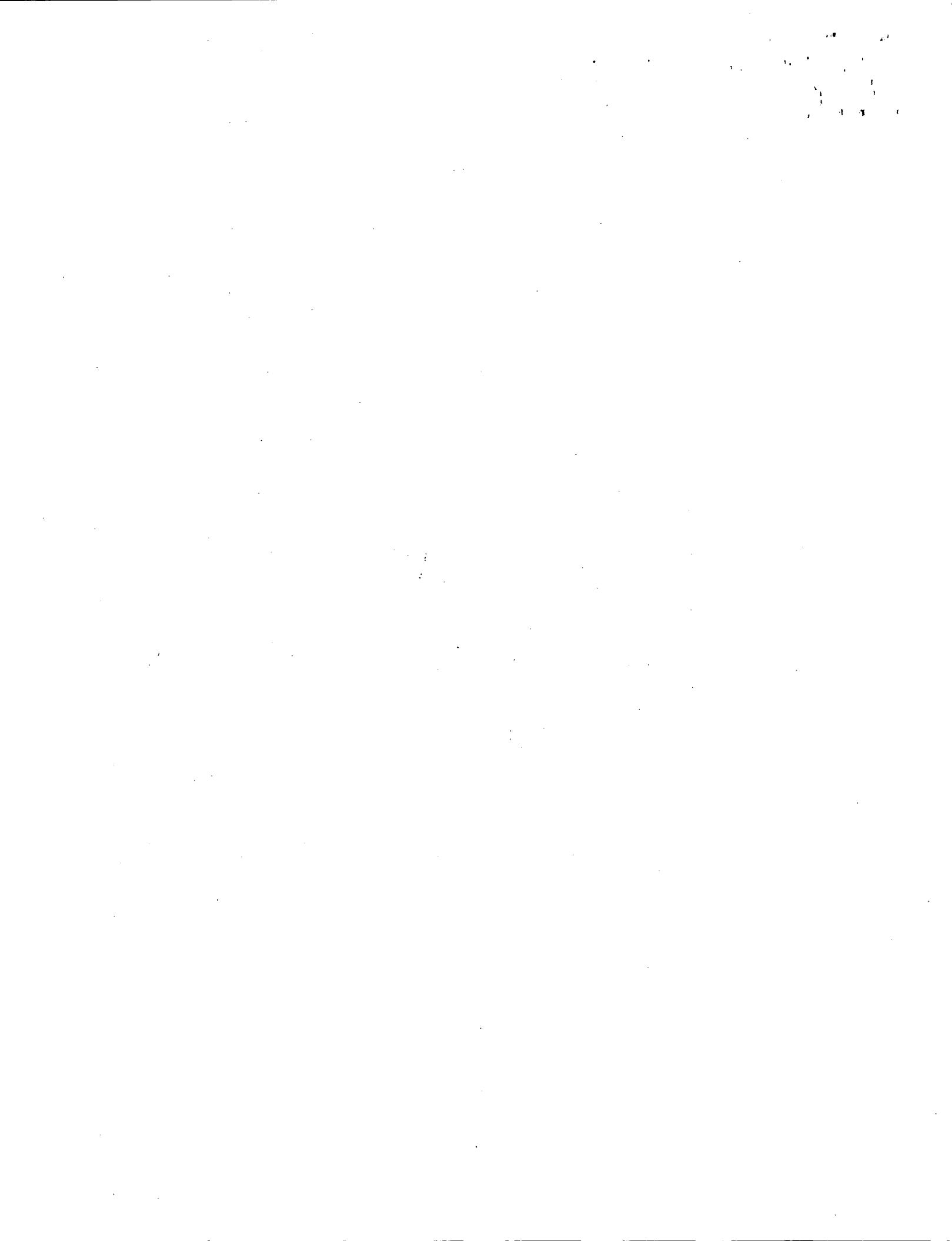
The GA-ASI's ERMP Program Letter, dated December 21, 2006 was used as a basis for the determining the operating limitations prescribed in this document. All flight operations must be conducted in accordance with the provisions contained in these operating limitations.

3. INITIAL FLIGHT TESTING

Flight operations shall be divided into 2 phases.

a. The following restrictions apply to Phase I flight-testing:

- 1) Shall be conducted within visual line of sight of the pilot/observer,
- 2) Shall be within a 5 statute mile radius of the airport for the first 10 flight hours, after which the radius may be expanded to 10 statute miles,



- 3) Shall be conducted at an altitude no greater than 7500 ft. MSL,
- 4) The aircraft may not be controlled by satellite communications,
- 5) Fuel load shall be limited to 5 hours flight time plus reserve required by 14 CFR 91.151.

Initial Phase I flight-testing shall be completed upon accumulation of 25 flight hours. Following satisfactory completion of Phase I flight testing, the operations manager or chief pilot must certify in the records that the aircraft has been shown to comply with § 91.319(b). Compliance with § 91.319(b) must be recorded in the aircraft records with the following or a similarly worded, statement:

"I certify that the prescribed flight test hours have been completed and the aircraft is controllable throughout its normal range of speeds and throughout all maneuvers to be executed, has no hazardous operating characteristics or design features, and is safe for operation. The following aircraft operating data has been demonstrated during the flight testing: speeds V_{so} _____, V_x _____, and V_y _____, and the weight _____ and CG location _____ at which they were obtained."

b. Phase 2 flight-testing authorizes flight in the primary containment area and the Edwards and Irwin ranges with the following limitations:

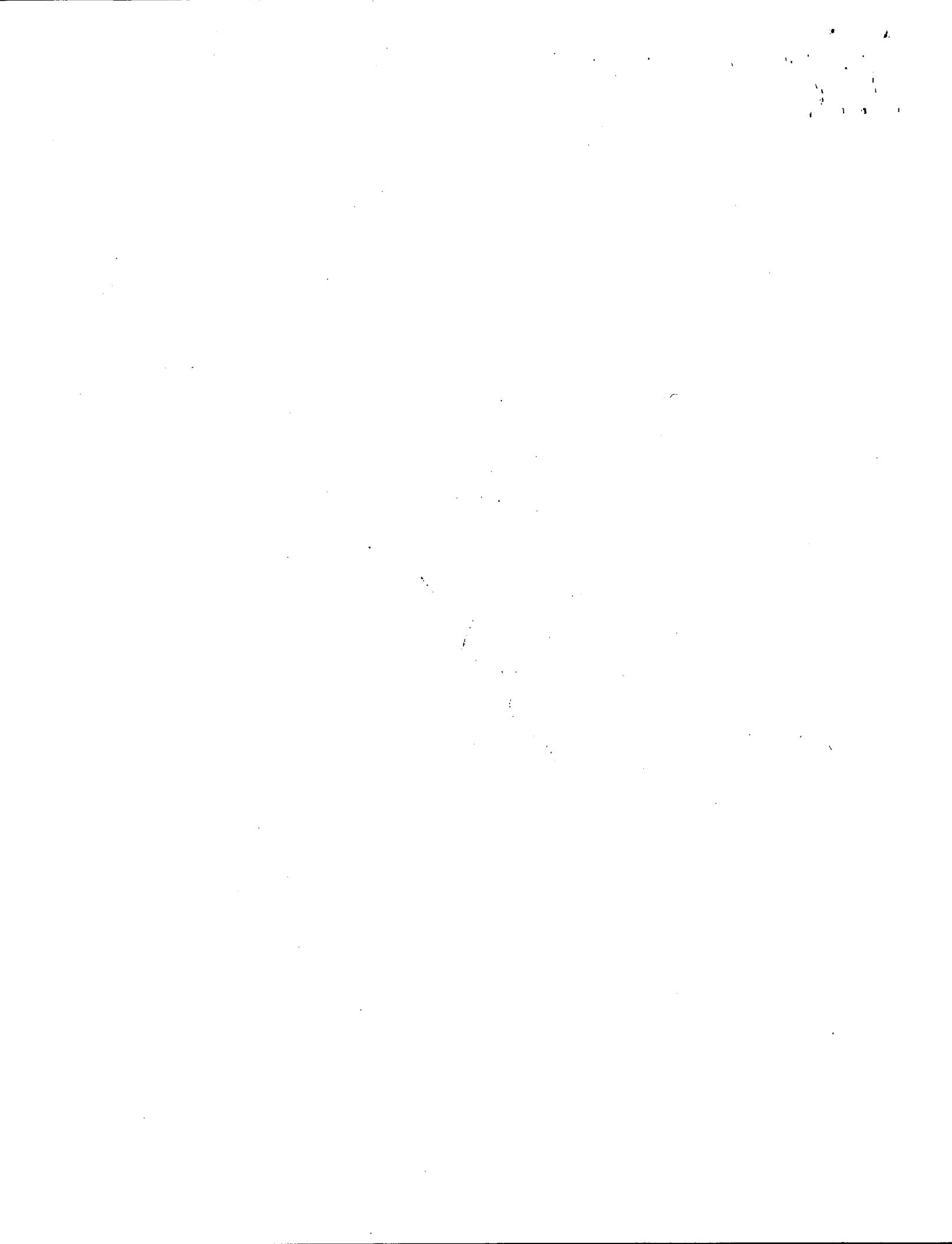
- 1) Fuel shall be limited to 530 lbs.
- 2) Shall not exceed an altitude of 13,000 ft MSL when operating in the PCA and 35,000 ft MSL when operating in restricted airspace.

4. AUTHORIZED FLIGHT TEST OPERATIONS AREA

a. The base of operations for the ERMP UAS shall be El Mirage, Adelanto, CA, and Gray Butte Field, Palmdale CA.

b. The flight test operations area authorized for the UA is depicted graphically below. This area shall be referred to as the "Primary Containment Area." General Atomics may be permitted to operate within restricted airspace per authorization of the using agency. Under these circumstances, should the UA venture beyond the boundaries of restricted airspace (e.g., spill out), provisions of this experimental certificate shall apply, including authorization to only operate within the boundaries of the Primary Containment Area. In these circumstances, General Atomics is responsible for notifying the FAA of the breach of any operations. The ERMP UAS is required to be operated in accordance with the conditions defined in these limitations and in compliance with FAA rules and regulations while operating in restricted airspace.

c. Flight operations in the Primary Containment Area shall be conducted below 13,000 feet MSL within the boundaries defined below. Flight operations shall not be conducted within the



Victorville (KVCV) Class D airspace. When operating in a terminal environment, the UA must have line of sight communications.

d. Beginning at:

lat. $34^{\circ}29'47''$ N, long. $117^{\circ}45'23''$ W, to
lat. $34^{\circ}37'41''$ N, long. $117^{\circ}45'23''$ W, to
lat. $34^{\circ}46'21''$ N, long. $117^{\circ}42'00''$ W, to
lat. $34^{\circ}46'30''$ N, long. $117^{\circ}35'03''$ W, to
lat. $34^{\circ}49'30''$ N, long. $117^{\circ}26'03''$ W, to
lat. $34^{\circ}51'17''$ N, long. $117^{\circ}26'03''$ W, to
lat. $34^{\circ}54'50''$ N, long. $117^{\circ}03'30''$ W, to
lat. $34^{\circ}35'22''$ N, long. $117^{\circ}01'38''$ W, to
lat. $34^{\circ}29'50''$ N, long. $117^{\circ}29'25''$ W, thence to the point of beginning.

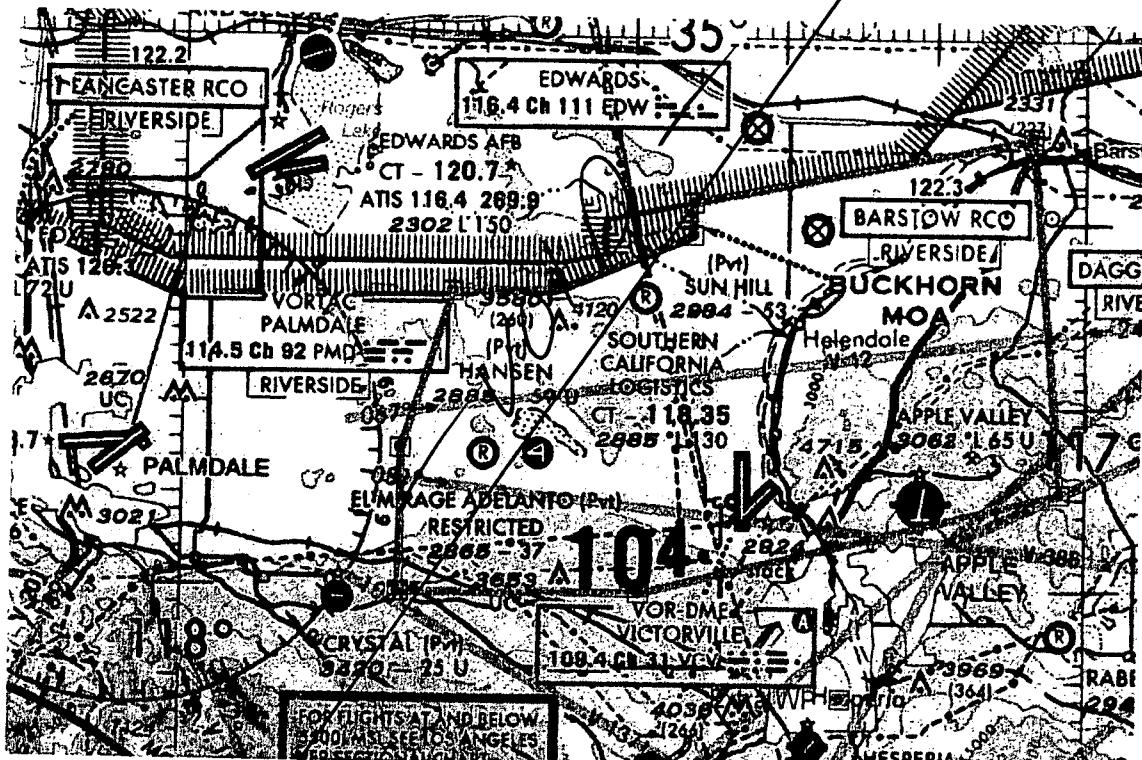


Figure 1: Primary Containment Area (WAC Depiction)



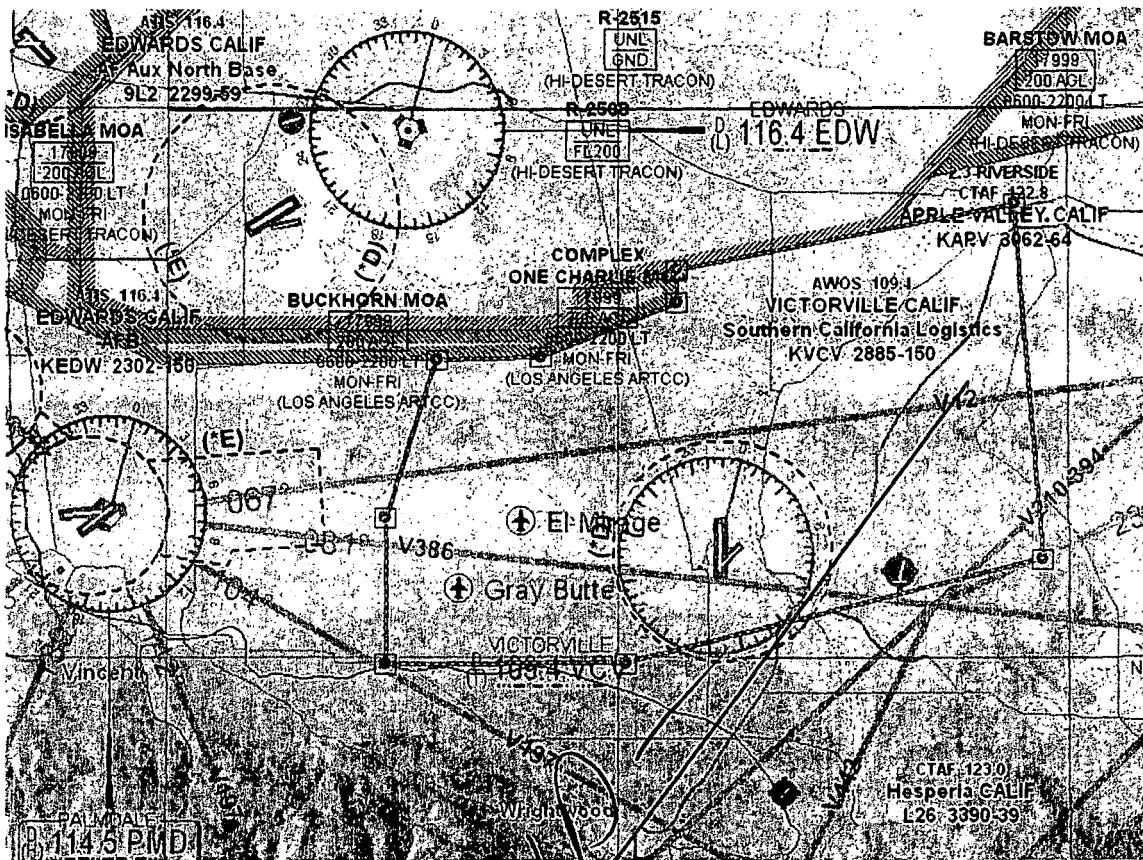
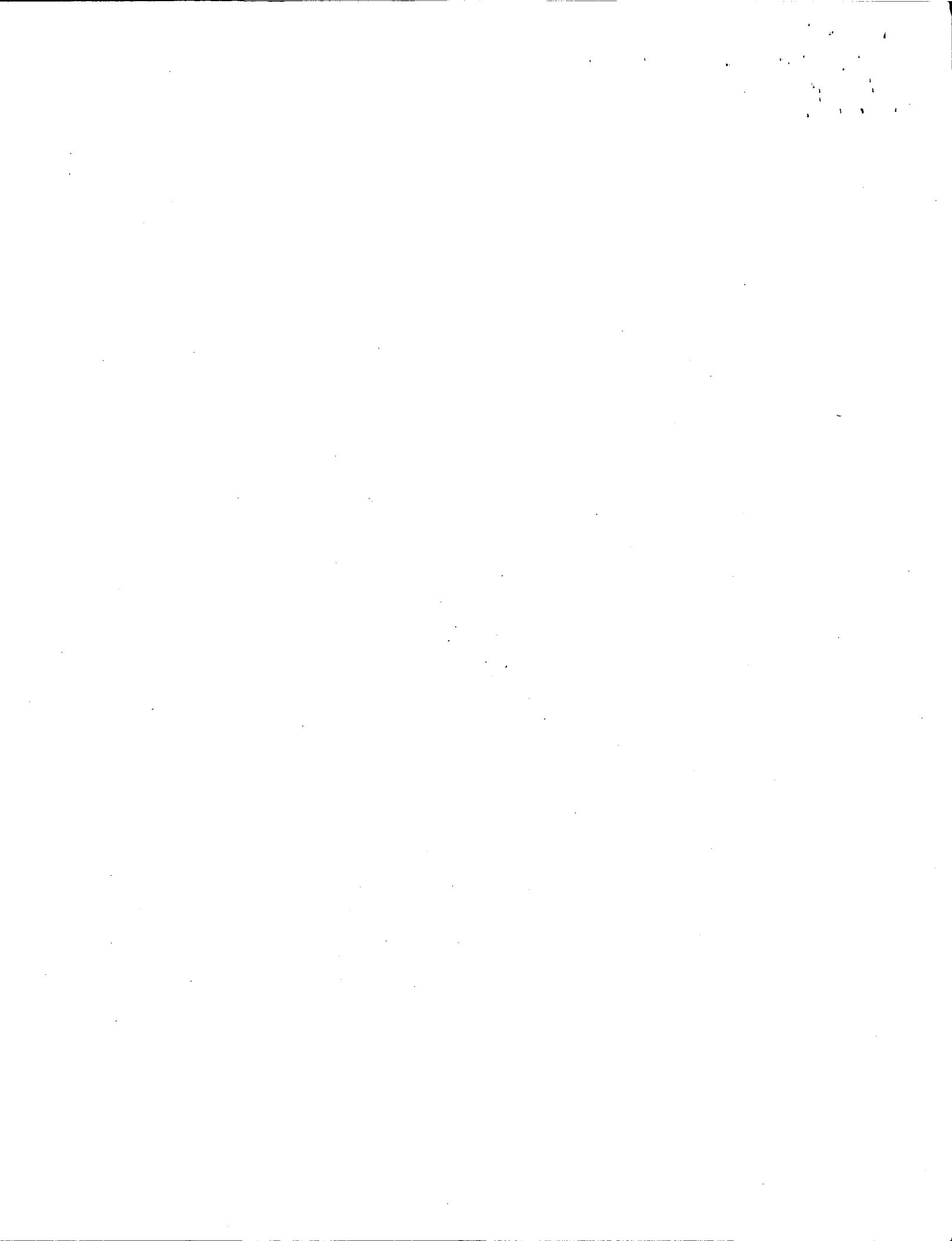


Figure 2: Primary Containment Area

- e. The PIC shall ensure that all UA flight operations remain within the lateral and vertical boundaries of the Primary Containment Area or any SUA approved by the using agency. Furthermore, the PIC shall take into account all factors that may affect the capability of remaining within the containment areas. This includes, but is not limited to, considerations for wind, gross weight, and glide distances.
- f. Incident / Accident Reporting. Any incident / accident and any flight operation that transgresses the lateral or vertical boundaries of the Primary Containment Areas or any SUA shall be reported to the FAA, Manager AIR-160, as soon as practicable, but always within 24 hours. Accidents shall be reported to the National Transportation Safety Board per the instructions contained on the NTSB website: www.ntsb.gov. The AIR-160 Manager can be reached at telephone number 202-385-4636, or by fax at 202-385-4651. The point of contact is Mr. Doug Davis. The report may be provided by either phone, or e-mail to kenneth.d.davis@faa.gov. Further flight operations shall not be conducted until the incident / accident is reviewed by ATO, AFS, and AIR-160, and authorization to resume operations is received.
- g. If the review reveals issues with the operating limitations, the FAA may revise/amend the operating limitations as part of the authorization to resume operations.

5. UA PILOT AND OBSERVER



- a. All flight operations conducted in the Primary Containment Area shall have an observer to perform traffic avoidance and visual observation to fulfill the "see and avoid" requirement of §91.113.
- b. UA pilots shall hold, at a minimum, an FAA Private Pilot certificate, Instrument Rating, Airplane category with Single or Multiengine class ratings, and have it in their possession.
- c. All observers shall:
 - 1) Hold at a minimum, an FAA Private Pilot certificate, or
 - 2) Successfully completed specific observer training acceptable to the FAA.
- d. UA pilots shall maintain currency in manned airplanes per 14 CFR §61.57.
- e. UA pilots shall maintain currency in unmanned aircraft in accordance with GA-ASI company procedures.
- f. UA pilots shall have a Flight Review in manned aircraft every 24 calendar months per 14 CFR §61.56.
- g. UA pilots shall have a Flight Review in unmanned aircraft every 24 calendar months in accordance with GA-ASI company procedures.
- h. Pilots and Observers shall have successfully completed applicable manufacturer training for high level systems and operational understanding of the UAS.
- i. Pilots and observers must have in their possession a valid third class (or higher) airman medical certificate that has been issued under 14 CFR part 67.
- j. A PIC must be designated at all times and be responsible for the safety of the UAS and persons and property along the UA flight path. This includes, but is not limited to, collision avoidance and the safety of persons and property in the air and on the ground. The PIC shall avoid densely populated areas (14 CFR § 91.319) and exercise increased vigilance when operating within published airway boundaries.
- k. UAS pilots and observers shall perform crew duties for only one UA at a time. When the observer is located in a chase aircraft, the observer's duties shall be dedicated to the task of observation only, concurrent duty as pilot is not authorized.
- l. All observers must be thoroughly trained, familiar with, and possess, operational experience with the equipment being utilized for observation and detection of other aircraft for collision avoidance purposes as outlined in GA-ASI program letter.
- m. Visual Observer Responsibilities: The task of the observer is to provide the pilot of the UA with instructions to maneuver the UA clear of any potential collision with other traffic. Visual observer duties require continuous visual contact with the UA at all times in such a manner as to be able to discern UA attitude and trajectory. At no time shall the visual observer permit the UA to operate beyond line-of-sight necessary to ensure that maneuvering



information can be reliably determined. At no time shall visual observers conduct their duties more than two nautical miles laterally or 3000 feet vertically from the UA. Observers must maintain continuous visual contact with the UA. When a chase aircraft is utilized, it must maintain a reasonable proximity, and shall position itself relative to the UA in such a manner to reduce the hazard of collision per §91.111.

6. COMMUNICATIONS

- a.** Each UAS Flight operation must be coordinated by telephone with High Desert TRACON and receive a transponder code at (661) 277-3843, 1 hour prior to the start of the flight operation.
- b.** Upon initial contact with ATC, the PIC must indicate the experimental nature in accordance with 14 CFR § 91.319.
- c.** The PIC must maintain two-way communication with ATC. If a chase aircraft is utilized, the chase aircraft pilot shall maintain two-way communications with ATC and with the PIC.
- d.** The PIC and observer(s) must maintain two-way communications with each other during all operations.
- e.** If communications cannot be maintained between the PIC, chase aircraft pilot, observer(s) and appropriate ATC facility, the UA will squawk 7600-transponder code, expeditiously return to its base of operations while remaining within the containment area, and conclude the flight operation.
- f.** Spectrum used for operation and control of the UAS must be approved by the FCC or other appropriate government oversight agency prior to operations being conducted.

7. FLIGHT CONDITIONS

- a.** All flight operations must be conducted under visual flight rules (VFR) in visual meteorological conditions (VMC), including cloud clearance minimums as specified in 14 CFR § 91.155. Flight operations under instrument flight rules (IFR) or in instrument meteorological conditions (IMC) are not authorized. Flight operations shall not be conducted under the Special VFR criteria specified in 14 CFR § 91.157, nor shall flight operations be conducted when flight visibility is less than three statute miles.
- b.** All flight operations within the Primary Containment Area as specified in Section 4d shall be conducted during daylight hours only.
- c.** The UA is prohibited from aerobatic flight, that is, an intentional maneuver involving an abrupt change in the UA's attitude, an abnormal acceleration, or other flight action not necessary for normal flight (§91.303).
- d.** Flight operations must not involve carrying hazardous material or the dropping of any objects or external stores.



- e. The UA and chase aircraft shall be equipped with operable navigation, position, and strobe/anti-collision lights. Strobe/anti-collision lights shall be illuminated at all times.
- f. The UA must operate an altitude encoding transponder (Mode S) in accordance with applicable guidelines and procedures.
- g. The chase aircraft transponder must be on standby while performing chase operation flight with the UA. In the event of UA transponder failure, the chase aircraft will contact ATC and assume transponder operations.
- h. In the event of transponder failure on either the UA or the chase aircraft, the UA must conclude all flight operations and expeditiously return to its base of operations within the prescribed limitations of this authorization.
- i. GA-ASI must request Notice to Airman (NOTAM) issuance through the appropriate Automated Flight Service Station twenty-four (24) hours prior to plan operation.

8. FLIGHT TERMINATION & LOST LINK PROCEDURES

- a. In accordance with GA-ASI Program Letter, dated December 21, 2006 flight operations must be discontinued at any point when the approved flight containment area(s) is breached and/or the control of the UA is questionable. If it is determined that the UA is still under control of the PIC, the UA shall return to base (RTB).
- b. In the event of lost link, the UA must provide a means of automatic recovery that ensures airborne operations are predictable and that the UA remains within the primary containment area. The UAS PIC will immediately notify ATC, chase aircraft/observer of the loss of link condition and what the expected UA response will be.
- c. During Phase I flight-testing General Atomics has agreed to implement an imbedded flight termination function that is autonomously executed within 1 hour of entering into lost link flight mode. During Phase 2 flight-testing General Atomics has agreed to implement an imbedded flight termination function that is autonomously executed within 1 hour of reaching final lost link loiter point.

9. MAINTENANCE

- a. This UAS must not be operated unless it is inspected and maintained in accordance with the General Atomics, CAPITAL EXTENDED RANGE/MULTI PURPOSE MAINTENANCE AND INSPECTION PROGRAM, ASI 01783 for the UA, and ASI 01727 for the GCS. Each inspection must be recorded in the UAS maintenance records.
- b. No person may operate this UAS unless within the preceding 12 calendar months it has had a condition inspection performed in accordance with, FAA-accepted, CAPITAL EXTENDED RANGE/MULTI PURPOSE MAINTENANCE AND INSPECTION PROGRAM, ASI 01783 for the UA, and ASI 01727 for the GCS, and was found to be in a condition for safe



operation. This inspection will be recorded in the UAS maintenance records.

c. Only those individuals authorized by General Atomics, and acceptable to the FAA, may perform inspections required by these operating limitations.

d. Inspections of the UAS must be recorded in the UAS maintenance records showing the following, or a similarly worded, statement: "I certify that this UAS has been inspected on [insert date] in accordance with the scope and detail of the CAPITAL EXTENDED RANGE/MULTI PURPOSE MAINTENANCE AND INSPECTION PROGRAM, ASI 01783 for the UA, and ASI 01727 for the GCS, and was found to be in a condition for safe operation." The entry will include the UAS's total time-in-service, and the name and signature of the person performing the inspection.

e. UAS instruments and equipment installed must be inspected and maintained in accordance with the requirements of the CAPITAL EXTENDED RANGE/MULTI PURPOSE MAINTENANCE AND INSPECTION PROGRAM, ASI 01783 for the UA, and ASI 01727 for the GCS. Any maintenance or inspection of this equipment must be recorded in the UAS maintenance records.

f. No person may operate this UAS unless the altimeter system and transponder have been tested within the preceding 24 calendar months in accordance with 14 CFR §91.411 and §91.413 respectively. These inspections will be recorded in the UA maintenance records.

10. EQUIPAGE

The UA shall be equipped with two-way communications equipment allowing communications between the UAS pilot, chase aircraft, and ATC facilities.

11. INFORMATION REPORTING

General Atomics shall provide the following information to Kenneth.d.Davis@faa.gov on a monthly basis.

- a. Number of flights conducted under this certificate.
- b. Pilot duty time per flight.
- c. Unusual equipment malfunctions (hardware or software), if any.
- d. Deviations from ATC instructions.
- e. Unintended entry into lost link flight mode that results in a course change.

12. REVISIONS

- a. The experimental certificate, General Atomics FAA-accepted program letter, and operating limitations cannot be reissued, renewed, or revised without application being made to the Los Angeles MIDO, and coordinated with the Production and Airworthiness Division, AIR-200. AIR-200 will be responsible for headquarters internal coordination with the Aircraft



This Airworthiness Certificate is issued for General Atomics UA model ERMP UWA-97000-1, serial number WA001, registration number N20321. This certification expires on May 9, 2008.

Note: If the so stated limitations or conditions cannot be complied with, ERMP flight operations shall be terminated.

Gary Bender
Applicant (signature)

Date: May 10, 2007

Name (Printed): Gary Bender

Title: Director Flight Operations

Company: General Atomics ASI

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Certification Service, Flight Standards Service, Air Traffic, Office of Chief Council, and Office of Rulemaking.

b. No Certificate of Authorization or Waiver may be issued in association with this Experimental Certificate unless coordinated with the Los Angeles MIDO and the Production and Airworthiness Division, AIR-200.

c. The provisions and limitations annotated in this operational approval may be amended or cancelled at any time as deemed necessary by the FAA.

d. All revisions to GA-ASI FAA-accepted CAPITAL EXTENDED RANGE/MULTI PURPOSE MAINTENANCE AND INSPECTION PROGRAM, ASI 01783 for the UA, and ASI 01727 for the GCS must be reviewed and accepted by the Van Nuys Flight Standards District Office.

13. UA MODIFICATIONS

a. All software and system changes will be documented as part of the normal maintenance procedures and be available for inspection. All software and system changes shall be inspected and approved per GA's maintenance procedures. All software changes to the aircraft and GCS are categorized as major changes, and shall be provided in summary form at the time they are incorporated.

b. All major modifications, whether performed under the experimental certificate or COA, that could potentially effect the safe operation of the system, shall be documented and shall be provided to the FAA prior to operating the aircraft under this certificate. Major modifications incorporated under COA need only be provided if the aircraft is flown under COA during the effective period of the experimental certificate.

c. All information requested shall be provided to AIR-200.



Robert J. Winn
Los Angeles Manufacturing Inspection District Office
3960 Paramount Blvd.
Lakewood, CA 90712

Date: May 10, 2007

I certify that I have read and understand the operating limitations, and conditions, that are a part of the Special Airworthiness Certificate, FAA Form 8130-7 issued on May 10, 2007 for the purpose of Research and Development, Crew Training, or Market Survey.





U.S. Department
of Transportation

**Federal Aviation
Administration**

11/21/2007

Los Angeles Manufacturing Inspection District Office
3960 Paramount Blvd.
Lakewood, CA 90712

EXPERIMENTAL - OPERATING LIMITATIONS
RESEARCH AND DEVELOPMENT, CREW TRAINING, or MARKET SURVEY

REGISTERED OWNER NAME: GENERAL ATOMICS AERONAUTICAL SYSTEMS, INC. (GA-ASI)	AIRCRAFT BUILDER: GENERAL ATOMICS AERONAUTICAL SYSTEMS
REGISTERED OWNER ADDRESS: 16761 VIA DEL CAMPO CT SAN DIEGO, CA 92127	YEAR MANUFACTURED: 2006
AIRCRAFT DESCRIPTION: FIXED WING, ERMP UNMANNED AIRCRAFT	AIRCRAFT SERIAL NUMBER: WA 001
AIRCRAFT REGISTRATION: N20321	AIRCRAFT MODEL DESIGNATION: ERMP UWA-97000-1
	ENGINE MODEL: Thielert Centurion 1.7 modified
	PROPELLER MODEL: Muhlbauer MT-6

**The following conditions and limitations apply to all General Atomics
Aeronautical Systems Inc (GA-ASI) Extended Range/Multi- Purpose (ERMP)
flight operations while operating in the National Airspace System (NAS):**

1. GENERAL

a. For the purposes of the **Special Airworthiness Certificate and Operating Limitations**, the ERMP Unmanned Aircraft System (UAS), owned and operated by GA-ASI, is considered to be an integrated system. The integrated system is composed of the ERMP aircraft, S/N: WA 001, unmanned aircraft (UA) pilot, UA control station(s) (fixed or mobile), telemetry, navigation and communications equipment. This equipment includes ground, air, and space based equipment that is used for control of the ERMP UA. The UAS also includes equipment on the ground and in the air that is used for communication with the chase aircraft and Air Traffic Control.



b. Unless otherwise specified in this document, the Pilot-in-Command (PIC) and GA-ASI shall comply with all applicable sections and parts of 14 CFR including, but not limited to, parts 61 and 91. Alternative methods of compliance with specific regulations shall be annotated in this document as required.

c. No person may operate this UAS for other than the purpose of **Research and Development (R&D) or crew training**, to accomplish the flight operation outlined in GA-ASI Program Letter, DP06-600-003 Revision D dated October 1, 2007, which describes compliance with §21.193(d), and has been made available to the pilot in command of the UAS. In addition, this UAS must be operated in accordance with applicable air traffic and general operating rules of part 91, and all additional limitations herein prescribed under the provisions of §91.319(e).

d. When changing between operating purposes of a multiple-purpose certificate, the operator must determine that the aircraft is in a condition for safe operation and appropriate for the purpose intended. A record entry will be made by a General Atomics Airframe and Powerplant mechanic to document that finding in the aircraft logbook.

e. The PIC must determine that the UAS is in a condition for safe operation, and in a configuration appropriate for the intended purpose of the flight.

f. No person may operate this UA to carry property for compensation or hire.

g. This UA must be marked with its U.S. Registration number in accordance with 14 CFR part 45.

h. This UA must display the word "EXPERIMENTAL" in accordance with §45.23(b).

i. Prior to conducting the initial ERMP flight operations, General Atomics Aeronautical Systems, Inc. must forward a copy of the ERMP Program Letter, Special Airworthiness Certificate, and Operating Limitations to the FAA Western Service Area, Debra Trindle, Air Traffic Representative, at debra.trindle@faa.gov or via fax at 623-856-8339 (cover sheet required), addressed to FAA ATREP.

j. Section 47.45 requires that the FAA Aircraft Registry must be notified within 30 days of any change in the aircraft registrant's address. Such notification is to be made by submitting Form 8050-1 to AFS-750 in Oklahoma City, Oklahoma.

2. PROGRAM LETTER

The GA-ASI Program Letter, DP06-600-003 Revision D dated October 1, 2007 was used as a basis for the determining the operating limitations prescribed in this document. All flight operations must be conducted in accordance with the provisions contained in these operating limitations.

3. FLIGHT TESTING

a. Before conducting any flight testing General Atomics must conduct and document appropriate pre-flight ground testing of the aircraft to ensure that incorporation of new



hardware and software will not adversely affect the safety of the aircraft while in flight, or of persons and property over which the aircraft will be operating. General Atomics must provide a description of how the incorporated hardware and software is isolated from the legacy operating system to ensure that no erroneous control inputs are commanded by the new hardware and software. These isolation procedures (and responsibility for completion thereof) must be described in the appropriate test plan or other system documentation to ensure they are accomplished before any Level of Interoperability (LOI) 2 flight is conducted.

b. Flight operations shall be limited to those flights required to accomplish the following:

1) FCF of the aircraft with legacy (non-TCDL) software and GCS after modification to incorporate the Tactical Common Data Link (TCDL) and associated equipment. TCDL and associated equipment will not be operated during the FCF.

2) Level of Interoperability (LOI) 2 flight tests in accordance with the TCDL AND OSGCS RISK REDUCTION GROUND AND FLIGHT TEST PLAN FOR Sky Warrior® Increment I Extended Range Multi-Purpose (ER/MP) Unmanned Aircraft System (UAS) and Supporting Equipment, General Atomics document ASI-02133.

c. General Atomics will provide the FAA, AIR-200 with the results of LOI-2 ground and taxi tests performed in accordance with ASI-02133. LOI-2 flight tests may not proceed until the FAA completes a review of the results of the LOI-2 ground tests, and annotates this review in the aircraft logbook.

d. Preliminary flight-testing is authorized only in the traffic pattern at El Mirage Airfield or Gray Butte Airfield. Once General Atomics is satisfied that the aircraft is functioning as expected and normally within the traffic pattern, flight testing may be expanded to the rest of the primary containment area (PCA) and the Edwards ranges (R-2508 and R-2515) with the following limitations:

1) Fuel shall be limited to 530 lbs,

2) Flight shall not exceed an altitude of 13,000 ft MSL when operating in the PCA and 35,000 ft MSL when operating in restricted airspace.

4. AUTHORIZED FLIGHT TEST OPERATIONS AREA

a. The base of operations for the ERMP UAS shall be El Mirage Airfield, Adelanto, CA, and Gray Butte Airfield, Palmdale, CA.

b. The flight test operations area authorized for the UA is depicted graphically below. This area shall be referred to as the "Primary Containment Area." General Atomics may be permitted to operate within special use airspace (SUA) per authorization of the using agency. Under these circumstances, should the UA venture beyond the boundaries of SUA airspace (e.g., spill out), provisions of this experimental certificate shall apply, including authorization to only operate within the boundaries of the Primary Containment Area. In these circumstances, General Atomics is responsible for notifying the FAA of the breach of any operations. The



ERMP UAS is required to be operated in accordance with the conditions defined in these limitations and in compliance with FAA rules and regulations while operating in restricted airspace.

c. Flight operations in the Primary Containment Area shall be conducted below 13,000 feet MSL within the boundaries defined below. Flight operations shall not be conducted within the Victorville (KVCV) Class D airspace. When operating in a terminal environment, the UA must have line of sight communications.

d. Beginning at:

- 1) lat. $34^{\circ}29'47''$ N, long. $117^{\circ}45'23''$ W, to
- 2) lat. $34^{\circ}37'41''$ N, long. $117^{\circ}45'23''$ W, (7.89 nm) to
- 3) lat. $34^{\circ}46'21''$ N, long. $117^{\circ}42'00''$ W, (9.10nm) to
- 4) lat. $34^{\circ}46'30''$ N, long. $117^{\circ}35'03''$ W, (5.71 nm) to
- 5) lat. $34^{\circ}49'30''$ N, long. $117^{\circ}26'03''$ W, (13.47 nm) to
- 6) lat. $34^{\circ}51'17''$ N, long. $117^{\circ}26'03''$ W, (1.78 nm) to
- 7) lat. $34^{\circ}54'50''$ N, long. $117^{\circ}03'30''$ W, (18.84 nm) to
- 8) lat. $34^{\circ}35'22''$ N, long. $117^{\circ}01'38''$ W, (19.53 nm) to
- 9) lat. $34^{\circ}29'50''$ N, long. $117^{\circ}29'25''$ W, (32.85 nm) thence to the point of beginning (13.13 nm).

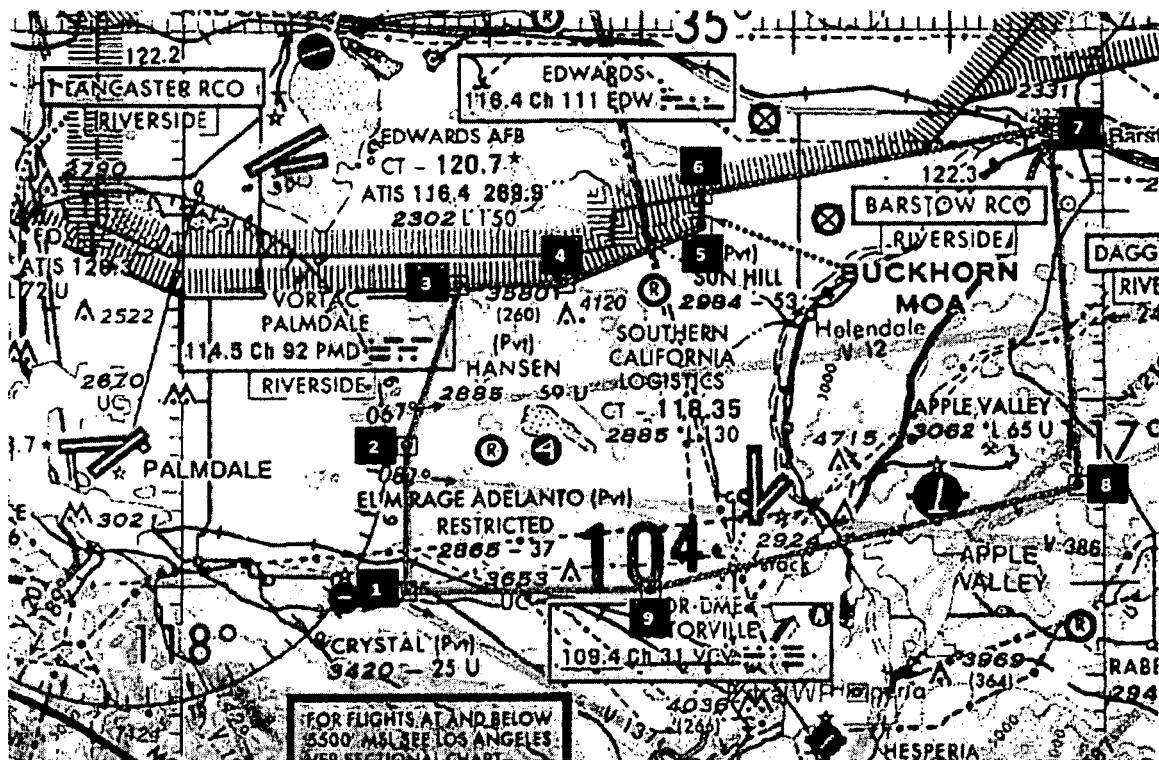


Figure 1: Primary Containment Area (WAC Depiction)



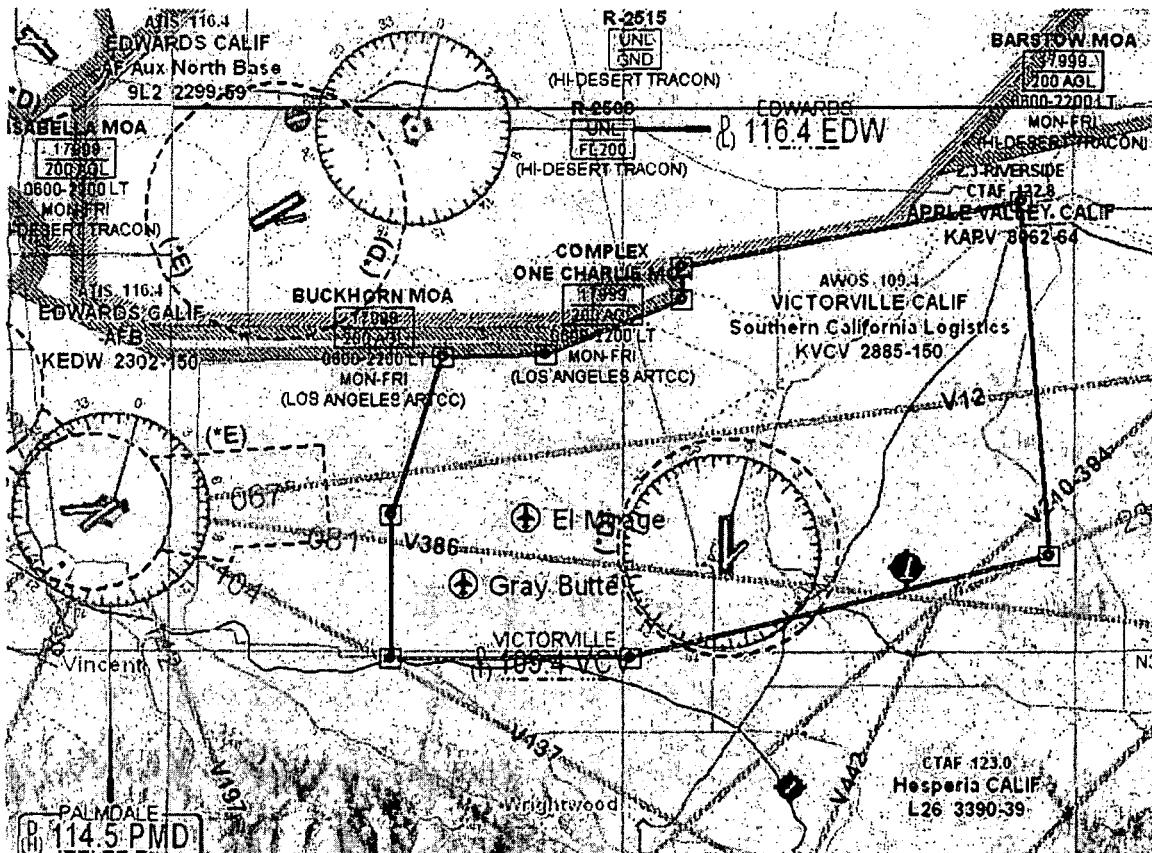


Figure 2: Primary Containment Area

e. The PIC shall ensure that all UA flight operations remain within the lateral and vertical boundaries of the Primary Containment Area or any SUA approved by the using agency. Furthermore, the PIC shall take into account all factors that may affect the capability of remaining within the containment areas. This includes, but is not limited to, considerations for wind, gross weight, and glide distances.

f. Incident / Accident Reporting. Any incident / accident and any flight operation that transgresses the lateral or vertical boundaries of the Primary Containment Areas or any SUA shall be reported to the FAA, Manager AIR-160, Mr. Doug Davis, as soon as practicable, but always within 24 hours. Mr. Davis can be reached at telephone number 202-385-4636, or by fax at 202-385-4651. The report may be provided by either phone, or e-mail to kenneth.d.davis@faa.gov. Further flight operations shall not be conducted until the incident / accident is reviewed by ATO, AFS, and AIR-160, and authorization to resume operations is received. Accidents shall be reported to the National Transportation Safety Board per the instructions contained on the NTSB website: www.ntsb.gov.

g. If the review reveals issues with the operating limitations, the FAA may revise/amend the operating limitations as part of the authorization to resume operations.

5. UA PILOT AND OBSERVER



- a. All flight operations conducted in the Primary Containment Area shall have an observer to perform traffic avoidance and visual observation to fulfill the "see and avoid" requirement of §91.113.
- b. UA pilots shall hold, at a minimum, an FAA Private Pilot certificate, Instrument Rating, Airplane category with Single or Multiengine class ratings, and have it in their possession.
- c. All observers shall:
 - 1) Hold at a minimum, an FAA Private Pilot certificate, or
 - 2) Successfully completed specific observer training acceptable to the FAA.
- d. UA pilots shall maintain currency in manned airplanes per 14 CFR §61.57.
- e. UA pilots shall maintain currency in unmanned aircraft in accordance with GA-ASI company procedures.
- f. UA pilots shall have a Flight Review in manned aircraft every 24 calendar months per 14 CFR §61.56.
- g. UA pilots shall have a Flight Review in unmanned aircraft every 24 calendar months in accordance with GA-ASI company procedures.
- h. Pilots and Observers shall have successfully completed applicable manufacturer training for high level systems and operational understanding of the UAS.
- i. Pilots and observers must have in their possession a valid third class (or higher) airman medical certificate that has been issued under 14 CFR part 67.
- j. A PIC must be designated at all times and be responsible for the safety of the UAS and persons and property along the UA flight path. This includes, but is not limited to, collision avoidance and the safety of persons and property in the air and on the ground. The PIC shall avoid densely populated areas (14 CFR § 91.319) and exercise increased vigilance when operating within published airway boundaries.
- k. UAS pilots and observers shall perform crew duties for only one UA at a time. When the observer is located in a chase aircraft, the observer's duties shall be dedicated to the task of observation only, concurrent duty as pilot is not authorized.
- l. All observers must be thoroughly trained, familiar with, and possess, operational experience with the equipment being utilized for observation and detection of other aircraft for collision avoidance purposes as outlined in GA-ASI program letter.
- m. Visual Observer Responsibilities: The task of the observer is to provide the pilot of the UA with instructions to maneuver the UA clear of any potential collision with other traffic. Visual observer duties require continuous visual contact with the UA at all times in such a manner as to be able to discern UA attitude and trajectory. At no time shall the visual observer permit the UA to operate beyond line-of-sight necessary to ensure that maneuvering



information can be reliably determined. At no time shall visual observers conduct their duties more than two (2) nautical miles laterally or 3000 feet vertically from the UA. Observers must maintain continuous visual contact with the UA. When a chase aircraft is utilized, it must maintain a reasonable proximity, and shall position itself relative to the UA in such a manner to reduce the hazard of collision per §91.111.

6. COMMUNICATIONS

- a. Each UAS Flight operation must be coordinated by telephone with High Desert TRACON and receive a transponder code at (661) 277-3843, 1 hour prior to the start of the flight operation.
- b. Upon initial contact with ATC, the PIC must indicate the experimental nature in accordance with 14 CFR § 91.319.
- c. The PIC must maintain two-way communication with ATC. If a chase aircraft is utilized, the chase aircraft pilot shall maintain two-way communications with ATC and with the PIC.
- d. The PIC and observer(s) must maintain two-way communications with each other during all operations.
- e. If communications cannot be maintained between the PIC, chase aircraft pilot, observer(s) and appropriate ATC facility, the UA will squawk 7600-transponder code, expeditiously return to its base of operations while remaining within the containment area, and conclude the flight operation.
- f. Spectrum used for operation and control of the UAS must be approved by the FCC or other appropriate government oversight agency prior to operations being conducted.

7. FLIGHT CONDITIONS

- a. All flight operations must be conducted under visual flight rules (VFR) in visual meteorological conditions (VMC), including cloud clearance minimums as specified in 14 CFR § 91.155. Flight operations under instrument flight rules (IFR) or in instrument meteorological conditions (IMC) are not authorized. Flight operations shall not be conducted under the Special VFR criteria specified in 14 CFR § 91.157, nor shall flight operations be conducted when flight visibility is less than three statute miles.
- b. All flight operations within the Primary Containment Area as specified in Section 4d shall be conducted during daylight hours only.
- c. The UA is prohibited from aerobatic flight, that is, an intentional maneuver involving an abrupt change in the UA's attitude, an abnormal acceleration, or other flight action not necessary for normal flight (§91.303).
- d. Flight operations must not involve carrying hazardous material or the dropping of any objects or external stores.



- e. The UA and chase aircraft shall be equipped with operable navigation, position, and strobe/anti-collision lights. Strobe/anti-collision lights shall be illuminated at all times.
- f. The UA must operate an altitude encoding transponder (Mode S) in accordance with applicable guidelines and procedures.
- g. The chase aircraft transponder must be on standby while performing chase operation flight with the UA. In the event of UA transponder failure, the chase aircraft will contact ATC and assume transponder operations.
- h. In the event of transponder failure on either the UA or the chase aircraft, the UA must conclude all flight operations and expeditiously return to its base of operations within the prescribed limitations of this authorization.
- i. GA-ASI must request Notice to Airman (NOTAM) issuance through the appropriate Automated Flight Service Station twenty-four (24) hours prior to plan operation.

8. FLIGHT TERMINATION & LOST LINK PROCEDURES

- a. In accordance with GA-ASI Program Letter, DP06-600-003 Revision D dated October 1, 2007 flight operations must be discontinued at any point when the approved flight containment area(s) is breached and/or the control of the UA is questionable. If it is determined that the UA is still under control of the PIC, the UA shall return to base (RTB).
- b. In the event of lost link, the UA must provide a means of automatic recovery that ensures airborne operations are predictable and that the UA remains within the primary containment area. The UAS PIC will immediately notify ATC, chase aircraft/observer of the loss of link condition and what the expected UA response will be.
- c. General Atomics has agreed to implement an imbedded flight termination function that is autonomously executed within 1 hour of reaching final lost link loiter point.

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- a. This UAS must not be operated unless it is inspected and maintained in accordance with the General Atomics, CAPITAL EXTENDED RANGE/MULTI PURPOSE MAINTENANCE AND INSPECTION PROGRAM, ASI 01783 for the UA, and ASI 01727 for the GCS. Each inspection must be recorded in the UAS maintenance records.
- b. No person may operate this UAS unless within the preceding 12 calendar months it has had a condition inspection performed in accordance with, FAA-accepted, CAPITAL EXTENDED RANGE/MULTI PURPOSE MAINTENANCE AND INSPECTION PROGRAM, ASI 01783 for the UA, and ASI 01727 for the GCS, and was found to be in a condition for safe operation. This inspection will be recorded in the UAS maintenance records.
- c. Only those individuals authorized by General Atomics, and acceptable to the FAA, may perform inspections required by these operating limitations.



d. Inspections of the UAS must be recorded in the UAS maintenance records showing the following, or a similarly worded, statement: "I certify that this UAS has been inspected on [insert date] in accordance with the scope and detail of the CAPITAL EXTENDED RANGE/MULTI PURPOSE MAINTENANCE AND INSPECTION PROGRAM, ASI 01783 for the UA, and ASI 01727 for the GCS, and was found to be in a condition for safe operation." The entry will include the UAS's total time-in-service, and the name and signature of the person performing the inspection.

e. UAS instruments and equipment installed must be inspected and maintained in accordance with the requirements of the CAPITAL EXTENDED RANGE/MULTI PURPOSE MAINTENANCE AND INSPECTION PROGRAM, ASI 01783 for the UA, and ASI 01727 for the GCS. Any maintenance or inspection of this equipment must be recorded in the UAS maintenance records.

f. No person may operate this UAS unless the altimeter system and transponder have been tested within the preceding 24 calendar months in accordance with 14 CFR §91.411 and §91.413 respectively. These inspections will be recorded in the UA maintenance records.

10. EQUIPAGE

The UA shall be equipped with two-way communications equipment allowing communications between the UAS pilot, chase aircraft, and ATC facilities.

11. INFORMATION REPORTING

General Atomics shall provide the following information to Kenneth.d.Davis@faa.gov on a monthly basis.

- a. Number of flights conducted under this certificate.
- b. Pilot duty time per flight.
- c. Unusual equipment malfunctions (hardware or software), if any.
- d. Deviations from ATC instructions.
- e. Unintended entry into lost link flight mode that results in a course change.

12. REVISIONS

a. The experimental certificate, General Atomics FAA-accepted program letter, and operating limitations cannot be reissued, renewed, or revised without application being made to the Los Angeles MIDO, and coordinated with the Production and Airworthiness Division, AIR-200. AIR-200 will be responsible for headquarters internal coordination with the Aircraft Certification Service, Flight Standards Service, Air Traffic, Office of Chief Council, and Office of Rulemaking.

b. No Certificate of Authorization or Waiver may be issued in association with this Experimental Certificate unless coordinated with the Los Angeles MIDO and the Production and Airworthiness Division, AIR-200.



- c. The provisions and limitations annotated in this operational approval may be amended or cancelled at any time as deemed necessary by the FAA.
- d. All revisions to GA-ASI FAA-accepted CAPITAL EXTENDED RANGE/MULTI PURPOSE MAINTENANCE AND INSPECTION PROGRAM, ASI 01783 for the UA, and ASI 01727 for the GCS must be reviewed and accepted by the Van Nuys Flight Standards District Office.

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- a. All software and system changes will be documented as part of the normal maintenance procedures and be available for inspection. All software and system changes shall be inspected and approved per GA's maintenance procedures. All software changes to the aircraft and GCS are categorized as major changes, and shall be provided in summary form at the time they are incorporated.
- b. All major modifications, whether performed under the experimental certificate or COA, that could potentially effect the safe operation of the system, shall be documented and shall be provided to the FAA prior to operating the aircraft under this certificate.
- c. All information requested shall be provided to AIR-200.

End of Limitations.



11/21/2007



Robert J. Winn
Los Angeles Manufacturing Inspection District Office
3960 Paramount Blvd.
Lakewood, CA 90712

Date: November 21, 2007

I certify that I have read and understand the operating limitations, and conditions that are a part of the Special Airworthiness Certificate, FAA Form 8130-7 issued on November 21, 2007 for the purpose of Research and Development or Crew Training.

This Airworthiness Certificate is issued for General Atomics UA model ERMP UWA-97000-1, serial number WA001, registration number N20321. This certification expires on November 20, 2008.

Note: If the so stated limitations or conditions cannot be complied with, ERMP flight operations shall be terminated.



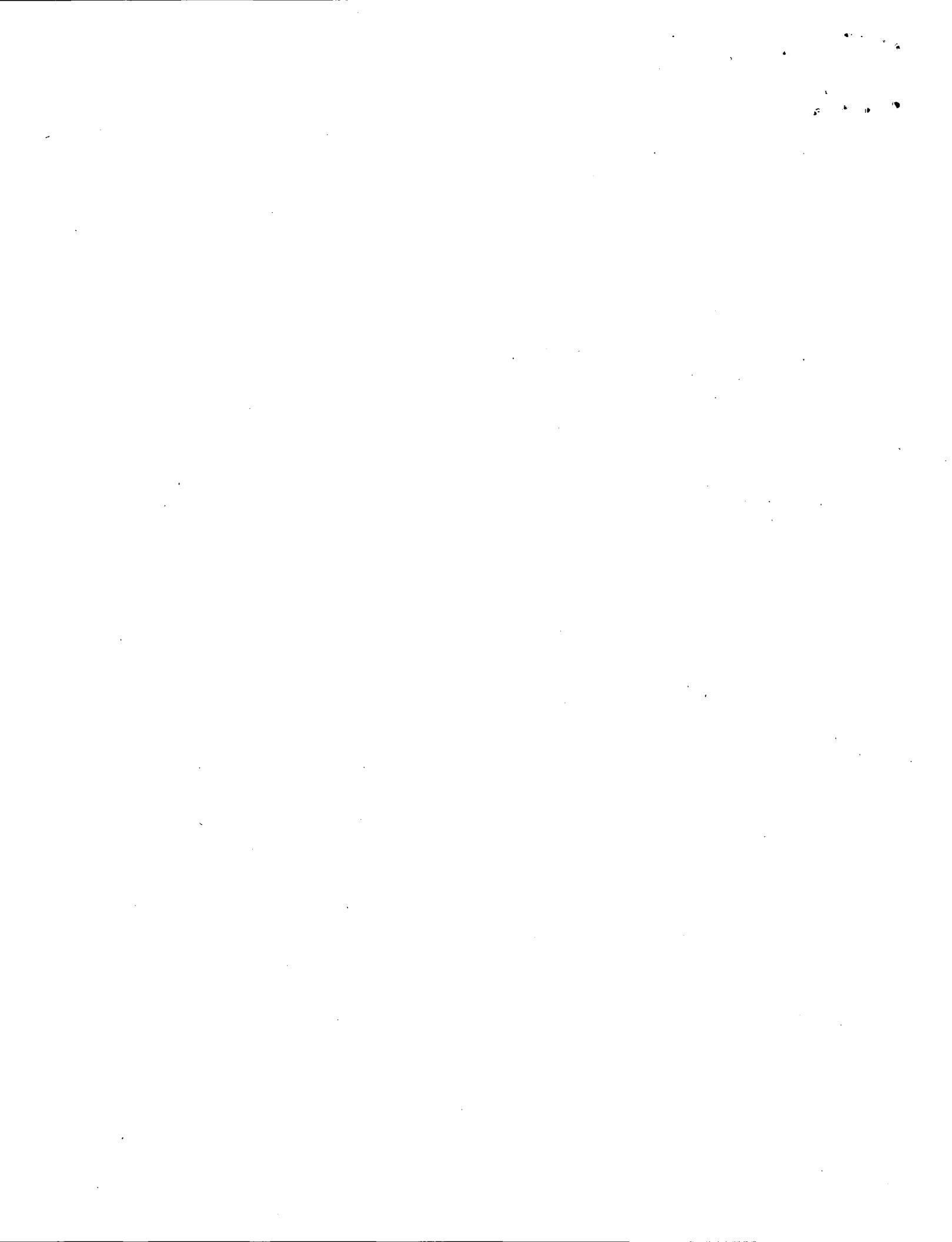
Applicant (signature)

Date: November 21, 2007

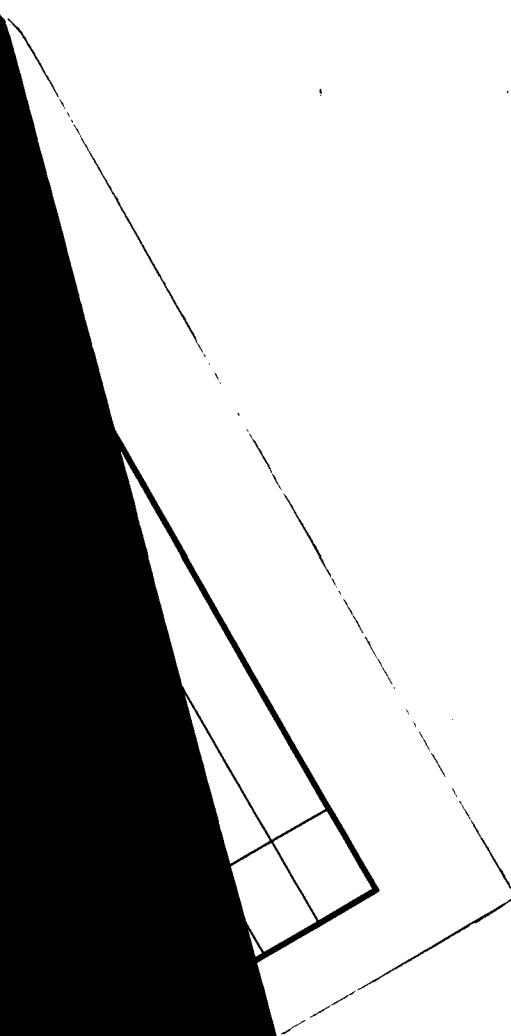
Name: Gary Bender

Title: Director Flight Operations

Company: General Atomics ASI



Conformity Inspection Record			1. Project Number, TIA/Request Date:			2. SHEET 1 of 4 Sheets	
3. Applicant/Manufacturer: General Atomics Aeronautical Systems, Inc. (GA-ASI)			4. Beginning Date: 11/21/07			5. Ending Date: 11/21/07	
6. Model: ERMP			7. Inspected By: R Winn				
8. Item No.	9. Nomenclature of Item Inspected	10. Drawing, Document, Specification, etc.	11. Revision and Date	12. No. of Items Determined		13. Comments	
				SAT.	UNSAT.		
1	Airworthiness Application	FAA Form 8130-6	10-04	1		Rec'd properly formatted application signed by Gary Bender Dtd: 11/21/07	
2	Aircraft Logbook	P/N: UWA97000-1 S/N: WA001		1		11(ea) Acft Maint Records (AMR) on file. Noting Panels removed for	
						FAA Req. Air Worthiness Inspection. To verify software and	
						Payload configuration to facilitate initial fit test after satisfactory	
						Completion of ground test. Avionics-584.1	
						Engine-140.4 Flights-16	
						Airframe hrs.: 44.3	
3	AMR	S/N 129152	11/07/07	1		High Desert Avionics ATC Modes/xponder and Alt. report	
						System tested and insp. By FAA approved station: HD7R252J	
						Acft: ERMP N#: 20231	
4	Weight and Balance	Tail Number: WA-001	11/19/07	1		Verified latest W/B, documented Block 1 upgrades for ERMP/OSGCS	
5	Variable Pitch Prop Log Book	S/N 3494 P/N MTV-6-A/D187-29		1		Latest Entry: 11/15/07 Hobbs Meter: 140.4 hrs	
						Prop Hrs.: 166.8 No Logbook entry for latest 100hr	
				1		Insp. (verified inspection and made logbook entry)	



6	Engine Logbook	S/N: GA002 P/N: 90-0020-0200001		1		Latest Entry: 11/15/07 Hobbs Meter: 140.4 hrs
7	UAV/Data Plate			1		S/N: WA001 Gross Wt: 3200 lbs Model: UWA97000-1 Eng.: TAE-125-GAT Reg#: N20321 Mfg Date: 9/2006
8	Left Wing / Main Gear			1		Visual insp. Overall condition of structure and hardware, Safety wire installation, paint condition and any evidence of Delamination or corrosion. Visual for FOD/FOP
9	Left side payload bays			1		Visual insp. of wiring and connectors for security and evidence of riding conditions. Security of payload racks, visual for FOD/FOP.
10	Propeller Assy / Props	S/N 03494		1		Visual Insp. of hardware installation and condition of props for delam and Any evidence of leading edge nicks or damage, (corrosion, delam)
11	Engine bay			1		Visual Insp. of accessories, ducting, wiring, hardware and weldments and associated mounting structure. Visual for FOD/FOP Data Plate: Ser# GA002
12	Right side payload bays			1		Visual insp. of wiring and connectors for security and evidence of riding conditions. Security of payload racks, visual for FOD/FOP.



13	Right Wing / Main Gear			1		Visual insp. Overall condition of structure and hardware, Safety wire installation, paint condition and any evidence of Delamination or corrosion. Visual for FOD/FOP
14	Fwd payload bay/ Nose gear			1		Visual insp. of wiring and connectors for security and evidence of riding conditions. Security of payload racks.
						Visual insp. overall condition of structure and hardware,
						Safety wire installation, paint condition and any evidence of Delamination or corrosion. Visual for FOD/FOP
15	UAV Exterior Markings			1		Right and left side near nose "EXPERIMENTAL" in 3 inch black on Gray lettering
						Reg#: Rht/Lft aft of wings fwd of ruddervators 12 inch black on grey lettering.
16	Flight Controls			1		Functional Check of Ailerons, Flaps and Ruddervators.
17	NavLites/Strobes			1		Ops check good
18	Legacy GCS logbook	S/N: 1002		1		Inspected GCS, verified operational checkout and GCS setup checklist AMR #: 112405 – 7 day insp. due Signed off 11/19/07 I.A.W. T.O. 1Q-1(M)B-2-2

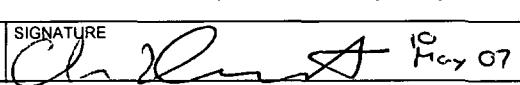
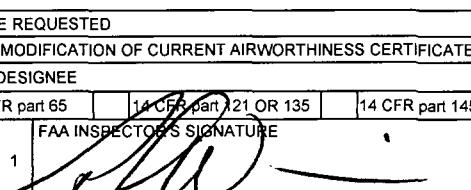


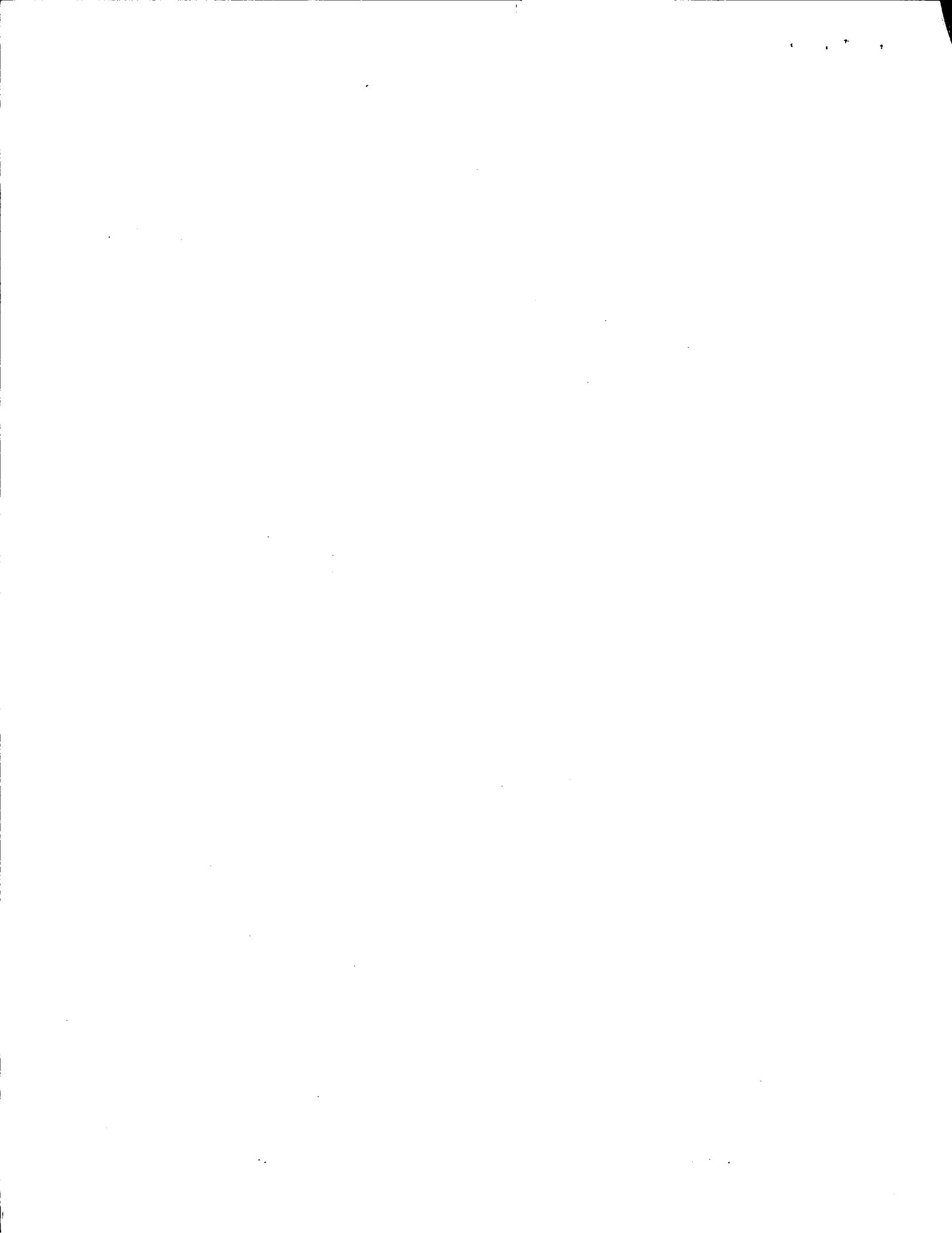
19	Power supply (x2)				1	Inspected diesel generator for condition and required maint
						Inspections log. Determined unsat. Inspected facilities power supply for
						Condition and inspection log. Determined unsat.
						Performed visual inspection of power supply cables. Unable to inspect
						100%. Identified visible damage to external sheathing/insulation
					Note:	Determined that GA had not performed nor required any power
						supply conditional inspections as part of their GCS operational insp.
						Informed them that it is necessary to document and track
						this UAV/UAS component, in order to maintain Air Worthiness approval.
						This was a MIDO oversight with regards to responsibility for overall acceptance, as related to the UAS.
						Further acceptance of any GA UAV/UAS will not be given until GA has provided acceptable
						inspection criteria for the power supply and associated equipment With regards to the Legacy GCS and OSGCS.
20	Log Book Entry					Performed written entry finding the UAS meets the requirements for the Certification Requested and issued a Special Airworthiness Certificate "Experimental". Dtd: 11/21/07
21	Special Airworthiness Certificate	FAA Form 8130-7				Experimental (unmanned) R&D, Crew Training, Market Survey Dtd: 11/21/07 Expires: 11/20/08
22	Operating Limitations					Issued limitations dated 11/21/07



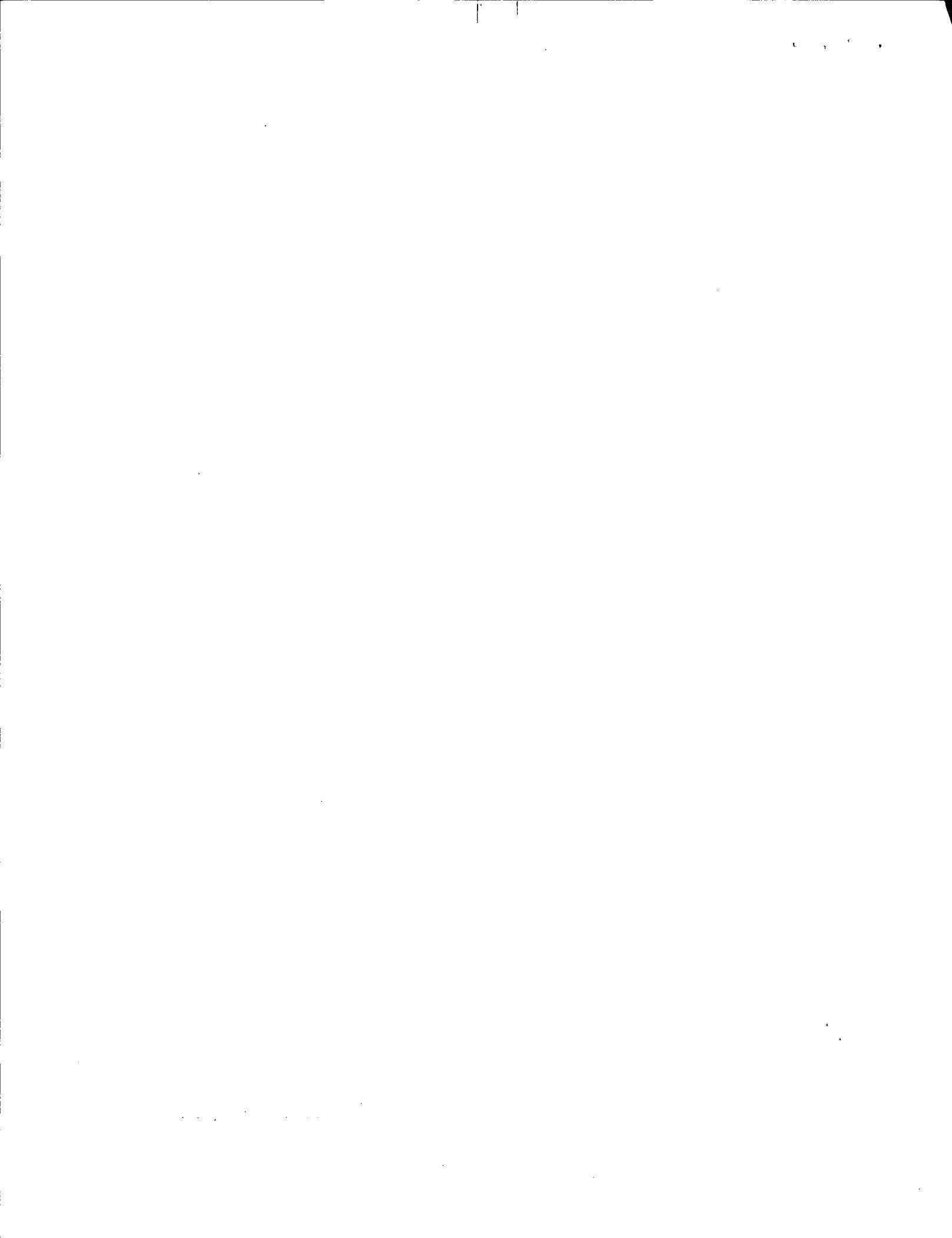
FAA FORM 8130-6, APPLICATION FOR U.S. AIRWORTHINESS CERTIFICATE

Form Approved O.M.B. No. 2120-0018
09/30/2007

 U.S. Department of Transportation Federal Aviation Administration		APPLICATION FOR U.S. AIRWORTHINESS CERTIFICATE			INSTRUCTIONS - Print or type. Do not write in shaded areas; these are for FAA use only. Submit original only to an authorized FAA Representative. If additional space is required, use attachment. For special flight permits complete Sections II, VI and VII as applicable.											
					1. REGISTRATION MARK		2. AIRCRAFT BUILDER'S NAME (Make)		3. AIRCRAFT MODEL DESIGNATION		4. YR. MFR.		FAA CODING			
I. AIRCRAFT DESIGNATION	N20321		General Atomics-ASI		Warrior UWA 97000-1		2006		0610009							
	5. AIRCRAFT SERIAL NO.		6. ENGINE BUILDER'S NAME (Make)		7. ENGINE MODEL DESIGNATION				59301							
	WA-001		Thielert		Centurion 1.7											
	8. NUMBER OF ENGINES		9. PROPELLER BUILDER'S NAME (Make)		10. PROPELLER MODEL DESIGNATION				11. AIRCRAFT IS (Check if applicable)							
One (1)		MT Muhlbauer		MT-6				IMPORT								
APPLICATION IS HEREBY MADE FOR: (Check applicable items)																
II. CERTIFICATION REQUESTED	A	1	STANDARD AIRWORTHINESS CERTIFICATE (Indicate Category)			NORMAL	UTILITY	ACROBATIC	TRANSPORT	COMMUTER	BALLOON	OTHER				
	B	<input checked="" type="checkbox"/>	SPECIAL AIRWORTHINESS CERTIFICATE (Check appropriate items)													
	7 PRIMARY															
	9 LIGHT-SPORT (Indicate Class) AIRPLANE POWER-PARACHUTE WEIGHT-SHIFT-CONTROL GLIDER LIGHTER THAN AIR															
	2 LIMITED															
	5 PROVISIONAL (Indicate Class) 1 CLASS I 2 CLASS II															
	3 RESTRICTED (Indicate operation(s) to be conducted) 1 AGRICULTURE AND PEST CONTROL 2 AERIAL SURVEY 3 AERIAL ADVERTISING 4 FOREST (Wildlife Conservation) 5 PATROLLING 6 WEATHER CONTROL 0 OTHER (Specify)															
	4 EXPERIMENTAL (Indicate operation(s) to be conducted) 1 ✓ RESEARCH AND DEVELOPMENT 2 AMATEUR BUILT 3 EXHIBITION 4 AIR RACING 5 ✓ CREW TRAINING 6 ✓ MARKET SURVEY 0 TO SHOW COMPLIANCE WITH THE CFR 7 OPERATING (Primary Category) KIT BUILT AIRCRAFT 8 OPERATING LIGHT-SPORT 8A Existing Aircraft without an airworthiness certificate & do not meet § 103.1 8B Operating Light-Sport Kit-Built 8C Operating light-sport previously issued special light-sport category airworthiness certificate under § 21.190															
	8 SPECIAL FLIGHT PERMIT (Indicate operation(s) to be conducted, then complete Section VI or VII as applicable on reverse side) 1 FERRY FLIGHT FOR REPAIRS, ALTERATIONS, MAINTENANCE, OR STORAGE 2 EVACUATION FROM AREA OF IMPENDING DANGER 3 OPERATION IN EXCESS OF MAXIMUM CERTIFICATED TAKE-OFF WEIGHT 4 DELIVERING OR EXPORTING 5 PRODUCTION FLIGHT TESTING 6 CUSTOMER DEMONSTRATION FLIGHTS															
	C 6 MULTIPLE AIRWORTHINESS CERTIFICATE (check ABOVE "Restricted Operation" and "Standard" or "Limited" as applicable)															
	III. OWNER'S CERTIFICATION	A. REGISTERED OWNER (As shown on certificate of aircraft registration)						IF DEALER, CHECK HERE →								
		NAME General Atomics, Aeronautical Systems Inc.						ADDRESS 16761 Via Del Campo Court San Diego, CA 92127								
B. AIRCRAFT CERTIFICATION BASIS (Check applicable blocks and complete items as indicated)																
AIRCRAFT SPECIFICATION OR TYPE CERTIFICATE DATA SHEET (Give No. and Revision No.)						<input checked="" type="checkbox"/>	AIRWORTHINESS DIRECTIVES (Check if all applicable AD's are compiled with and give the number of the last AD SUPPLEMENT available in the biweekly series as of the date of application) 2007-009									
AIRCRAFT LISTING (Give page number(s))						SUPPLEMENTAL TYPE CERTIFICATE (List number of each STC incorporated) N/A										
C. AIRCRAFT OPERATION AND MAINTENANCE RECORDS																
✓ CHECK IF RECORDS IN COMPLIANCE WITH 14 CFR Section 91.417			TOTAL AIRFRAME HOURS Zero (0)			3	EXPERIMENTAL ONLY (Enter hours flown since last certificate issued or renewed)									
D. CERTIFICATION - I hereby certify that I am the registered owner (or his agent) of the aircraft described above, that the aircraft is registered with the Federal Aviation Administration in accordance with Title 49 of the United States Code 44101 <i>et seq.</i> and applicable Federal Aviation Regulations, and that the aircraft has been inspected and is airworthy and eligible for the airworthiness certificate requested.																
DATE OF APPLICATION Dec. 21, 2006			NAME AND TITLE (Print) Chris Dusseault, EMP Program Manager			SIGNATURE 										
IV. INSPECTION AGENCY VERIFICATION		A. THE AIRCRAFT DESCRIBED ABOVE HAS BEEN INSPECTED AND FOUND AIRWORTHY BY: (Complete the section only if 14 CFR part 21.183(d) applies)														
	2	14 CFR part 121 CERTIFICATE HOLDER (Give Certificate No.)		3	CERTIFICATED MECHANIC (Give Certificate No.)		6	CERTIFICATED REPAIR STATION (Give Certificate No.)								
	5	AIRCRAFT MANUFACTURER (Give name or firm)														
	DATE			TITLE			SIGNATURE									
V. FAA REPRESENTATIVE CERTIFICATION	(Check ALL applicable block items A and B)						<input checked="" type="checkbox"/>	THE CERTIFICATE REQUESTED								
	A. I find that the aircraft described in Section I or VII meets requirements for						4	AMENDMENT OR MODIFICATION OF CURRENT AIRWORTHINESS CERTIFICATE								
	B. Inspection for a special permit under Section VII was conducted by:						<input checked="" type="checkbox"/>	FAA INSPECTOR	CERTIFICATE HOLDER UNDER	14 CFR part 65	14 CFR part 21 OR 135	14 CFR part 145				
	DATE 5/10/07		DISTRICT OFFICE LA-M100		4	DESIGNEE'S SIGNATURE AND NO.			1	FAA INSPECTOR'S SIGNATURE 						



VI. PRODUCTION FLIGHT TESTING	A. MANUFACTURER				
	NAME		ADDRESS		
	B. PRODUCTION BASIS (Check applicable item)				
		PRODUCTION CERTIFICATE (Give production certificate number)		→	
		TYPE CERTIFICATE ONLY			
		APPROVED PRODUCTION INSPECTION SYSTEM			
	C. GIVE QUANTITY OF CERTIFICATES REQUIRED FOR OPERATING NEEDS				
	DATE OF APPLICATION		NAME AND TITLE (Print or Type)		SIGNATURE
	A. DESCRIPTION OF AIRCRAFT				
	REGISTERED OWNER		ADDRESS		
BUILDER (Make)		MODEL			
SERIAL NUMBER		REGISTRATION MARK			
B. DESCRIPTION OF FLIGHT		CUSTOMER DEMONSTRATION FLIGHTS <input type="checkbox"/> (Check if applicable)			
FROM		TO			
VIA		DEPARTURE DATE		DURATION	
C. CREW REQUIRED TO OPERATE THE AIRCRAFT AND ITS EQUIPMENT					
	PILOT	CO-PILOT	FLIGHT ENGINEER	OTHER (Specify)	
D. THE AIRCRAFT DOES NOT MEET THE APPLICABLE AIRWORTHINESS REQUIREMENTS AS FOLLOWS:					
E. THE FOLLOWING RESTRICTIONS ARE CONSIDERED NECESSARY FOR SAFE OPERATION: (Use attachment if necessary)					
F. CERTIFICATION – I hereby certify that I am the registered owner (or his agent) of the aircraft described above; that the aircraft is registered with the Federal Aviation Administration in accordance with Title 49 of the United States Code 44101 <i>et seq.</i> and applicable Federal Aviation Regulations; and that the aircraft has been inspected and is safe for the flight described.					
DATE		NAME AND TITLE (Print or Type)		SIGNATURE	
VII. SPECIAL FLIGHT PERMIT PURPOSES OTHER THAN PRODUCTION FLIGHT TEST	A. Operating Limitations and Markings in Compliance with 14 CFR Section 91.9, as applicable.		G. Statement of Conformity, FAA Form 8130-9 (Attach when required)		
	B. Current Operating Limitations Attached		H. Foreign Airworthiness Certification for Import Aircraft (Attach when required)		
	C. Data, Drawings, Photographs, etc. (Attach when required)		I. Previous Airworthiness Certificate Issued in Accordance with 14 CFR Section _____ CAR _____ (Original Attached)		
	D. Current Weight and Balance information Available in Aircraft		J. Current Airworthiness Certificate Issued in Accordance with 14 CFR Section <u>§ 21.191, 21.195</u> (Copy Attached)		
	E. Major Repair and Alteration, FAA Form 337 (Attach when required)		K. Light-Sport Aircraft Statement of Compliance, FAA Form 8130-15 (Attach when required)		
	F. This inspection Recorded in Aircraft Records				



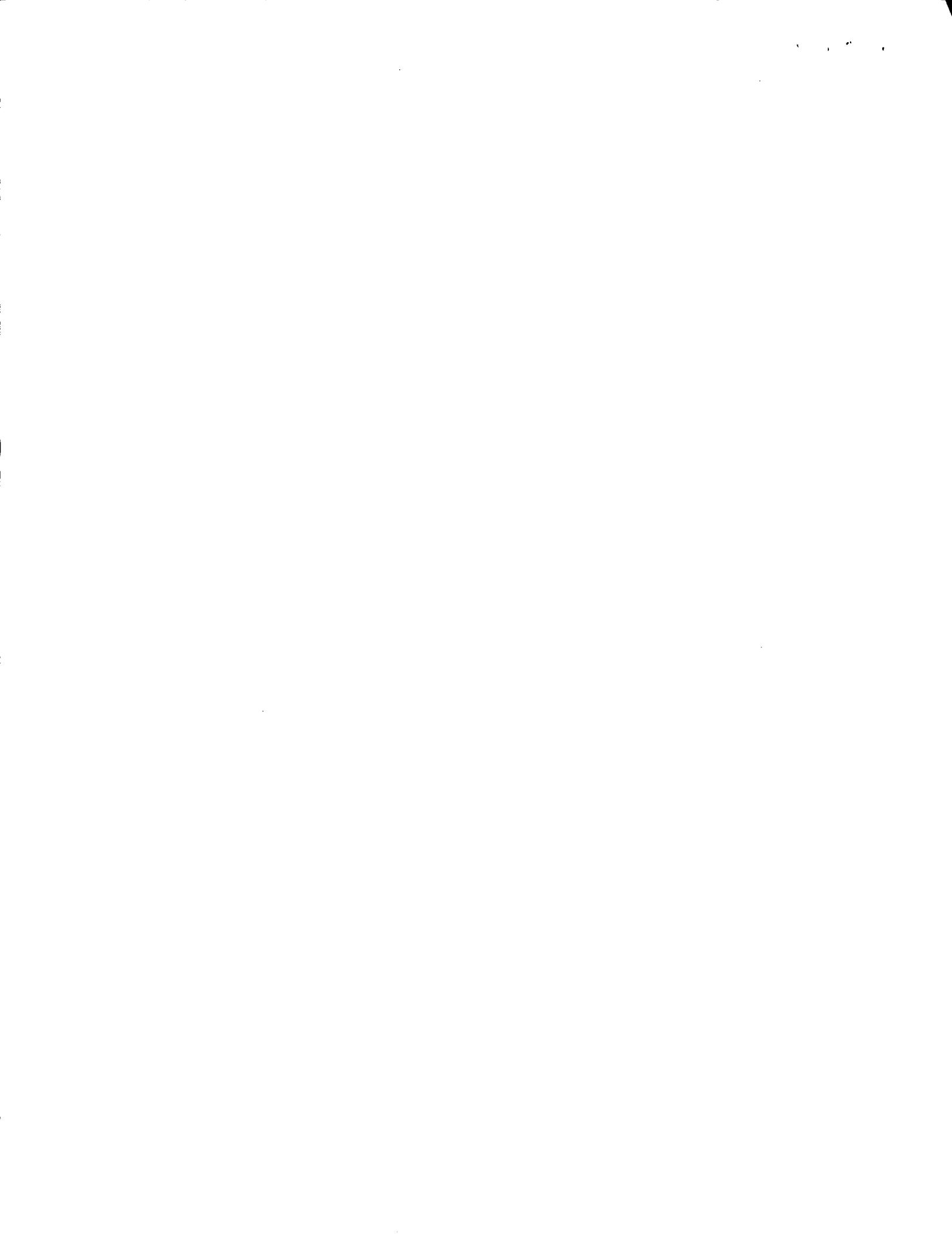
UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION
SPECIAL AIRWORTHINESS CERTIFICATE

A	CATEGORY/DESIGNATION: EXPERIMENTAL (UNMANNED AIRCRAFT)	
A	PURPOSE: Research and Development, Crew Training or Market Survey	
B	MANUFACTURER	NAME: N/A
B	FACTORY	ADDRESS: N/A
C	FLIGHT	FROM: N/A
C		TO: N/A
D	N: 20321	SERIAL NO: WA-001
D	BUILDER: General Atomics ASI	MODEL: ERMP UWA-97000-1
D	DATE OF ISSUANCE: 5/10/2007	EXPIRY: 5/09/2008
E	OPERATING LIMITATIONS DATED 5/10/2007 ARE A PART OF THIS CERTIFICATE	
E	SIGNATURE OF FAA REPRESENTATIVE: 	DESIGNATION OR OFFICE NO: ANM-108L

Any alteration, reproduction or misuse of this certificate may be punishable by a fine not exceeding \$1,000 or imprisonment not exceeding 3 years, or both. THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT IN ACCORDANCE WITH APPLICABLE FEDERAL AVIATION REGULATIONS.

FAA FORM 8130-7 (10/82)

SEE REVERSE SIDE



PROGRAM LETTER

for

General Atomics Aeronautical Systems, Inc. (GA-ASI)

Extended Range Multi-Purpose (ERMP) Special Airworthiness Certificate (Experimental)

Date: 21 December 2006

REPORT NUMBER: DP06-600-001

TITLE: Program Letter for ERMP Special Airworthiness Certificate

PROGRAM: ERMP Experimental Certification

The information disclosed herein is the exclusive property of General Atomics Aeronautical Systems, Inc. or contains proprietary rights of other and is not to be used or disclosed to others without the written consent of General Atomics Aeronautical Systems, Inc. The recipient of this document by its retention and use agrees to hold in confidence the information contained herein. The foregoing shall not apply to persons having proprietary rights to such information, to the extent that such rights exist.

REPORT NUMBER: DP06-600-001

TITLE: Program Letter for ERMP Special Airworthiness Certificate

PROGRAM: ERMP Experimental Certification

Approved by: /signed/ _____ 21 Dec 06

Christopher Dusseault
ERMP UAS Program Manager

REVISION LOG							
Rev Letter	Date	Revised By	Approved By	Pages Affected	Removed	Added	Remarks
NC	02/01/06	-	Christopher Dusseault	-	-	-	Initial Release
A	12/21/06	-	Christopher Dusseault				Dec 06 Update

**GA-ASI PROGRAM LETTER FOR ERMP UNMANNED AIRCRAFT SYSTEMS,
SPECIAL AIRWORTHINESS CERTIFICATE**

REGISTERED OWNER NAME:	AIRCRAFT BUILDER:
General Atomics Aeronautical Systems Inc.	General Atomics Aeronautical Systems Inc.
REGISTERED OWNER ADDRESS:	YEAR MANUFACTURED:
16761 Via Del Campo Court San Diego, CA 92127	2006
AIRCRAFT DESCRIPTION:	AIRCRAFT SERIAL NUMBER:
ERMP Unmanned Aircraft	WA 001
AIRCRAFT REGISTRATION:	AIRCRAFT MODEL DESIGNATION:
N20321	ERMP UWA-97000-1
	ENGINE MODEL:
	Thielert Centurion 1.7 modified
	PROPELLER MODEL:
	Muhlbauer MT-6

1. DEFINE THE EXPERIMENTAL PURPOSE(S) UNDER WHICH THE AIRCRAFT IS TO BE OPERATED (14 CFR § 21.191):

1.1 General Atomics Aeronautical Systems Inc. (GA-ASI) requests an Experimental Certificate to conduct flight operations under (14 CFR § 21.191(a) & (c)) of our ERMP Unmanned Aircraft System (UAS) at our Gray Butte and El Mirage Flight Operation Facilities location for the following purposes:

1.1.1 Research and development - Testing new aircraft design concepts, new aircraft equipment, new aircraft installations, new aircraft operating techniques, or new uses for aircraft.

1.1.2 Crew training - Training of our flight crews.

**2. DESCRIBE THE PURPOSE/SCOPE OF THE EXPERIMENTAL PROGRAM
FOR EACH 14 CFR § 21.191 EXPERIMENTAL PURPOSE SOUGHT (14 CFR
§§ 21.193(b)(d))**

2.1 We request an experimental certificate for ERMP for operating the UAS at our Flight Operations Facilities for the following purposes:

2.1.1 Company research and development flights – The Capital ERMP will be used to verify the design of the new ERMP airframe. To mitigate system risk the Capital ERMP flights will be conducted using a legacy Predator A Ground Control Station (GCS) and legacy Predator A Datalinks. This allows the developmental flights to focus on the new airframe.

The following bullets list the objectives of the proposed Capital ERMP Ground Test Program that will be conducted prior to the first flight of the aircraft:

- Ground Check-out of the Capital ERMP sub-systems
 - o Propulsion
 - o Fuel System
 - o Flight Data System
 - o Air Data and Navigation System
 - o Electrical Distribution System
 - o Landing Gear
 - o C-band Datalink
- Structural Testing
 - o Weight and CG Test
 - o Ground Vibration Test (GVT)
 - o Flight Control System Surface Gain and Phase Testing
 - o Low and High Speed Taxi Tests

The following bullets list the objectives of the proposed Capital ERMP Flight Test program:

- Basic Functionality Check-out
 - o AV Static/Dynamic Stability and Control
 - o Autopilot
 - o Turn Coordination
 - o Lost Link Routines
- Expanded Envelope Functionality Checks
 - o Air Data System Calibration Factors
 - o AV Static/Dynamic Stability and Control
 - o Autopilot
 - o Turn Coordination
 - o Lost Link Routines
- Performance Evaluations
 - o Automatic Take-off and Landing Algorithms
 - o Take-off and Landing Distances
 - o Climb/Decent Rates

- o Approach to Stall Characteristics
- o Propulsion System Validation
- o Endurance Tests (fuel flow)
- o Payload (EO/IR and SAR) Performance and Characteristics

The above performance evaluations will be conducted in both the clean wing and captive carry weapons configurations. The captive carry weapons will be inert mass simulants and no launches or releases of weapons/stores will be conducted from the Capital ERMP aircraft.

2.1.2 Crew training - We would like to employ the ERMP for crew training of company personnel.

2.2 Detailed information required by 14 CFR 21.193 (b) & (d) is provided in the following paragraphs.

3. DEFINE THE AREA(S) IN WHICH THE EXPERIMENTAL FLIGHTS WILL BE CONDUCTED:

3.1 Address of Base of Operation: Operations will be conducted from the GA-ASI flight operations facilities located at Gray Butte and El Mirage, CA.

3.1.1 Gray Butte
25500 East Avenue R-8
Palmdale, CA 93550
(661) 233-6000

3.1.2 El Mirage
73 El Mirage Airport Road – Suite B
Adelanto, CA 92301
(760) 388-8100

3.2 Special Provisions - ERMP will be operated in accordance with the special provisions specified below.

3.2.1 ERMP operations will be conducted in Visual Meteorological Conditions (VMC). ERMP shall follow FAR Part 91 cloud clearance requirements.

3.2.2 Flight operations will not be conducted in Victorville CA Class D airspace.

3.2.3 ERMP UAS flight operations will be conducted in accordance with Visual Flight Rules (VFR) and with an appropriately equipped chase aircraft below 13,000 feet MSL in the following Primary Containment area and within the noted coordinates.

d. Beginning at:

lat. 34°29'47"N, long. 117°45'23"W, to
 lat. 34°37'41"N, long. 117°45'23"W, to
 lat. 34°46'21"N, long. 117°42'00"W, to
 lat. 34°46'30"N, long. 117°35'03"W, to
 lat. 34°49'30"N, long. 117°26'03"W, to
 lat. 34°51'17"N, long. 117°26'03"W, to
 lat. 34°54'50"N, long. 117°03'30"W, to
 lat. 34°35'22"N, long. 117°01'38"W, to
 lat. 34°29'50"N, long. 117°29'25"W, thence to the point of beginning.

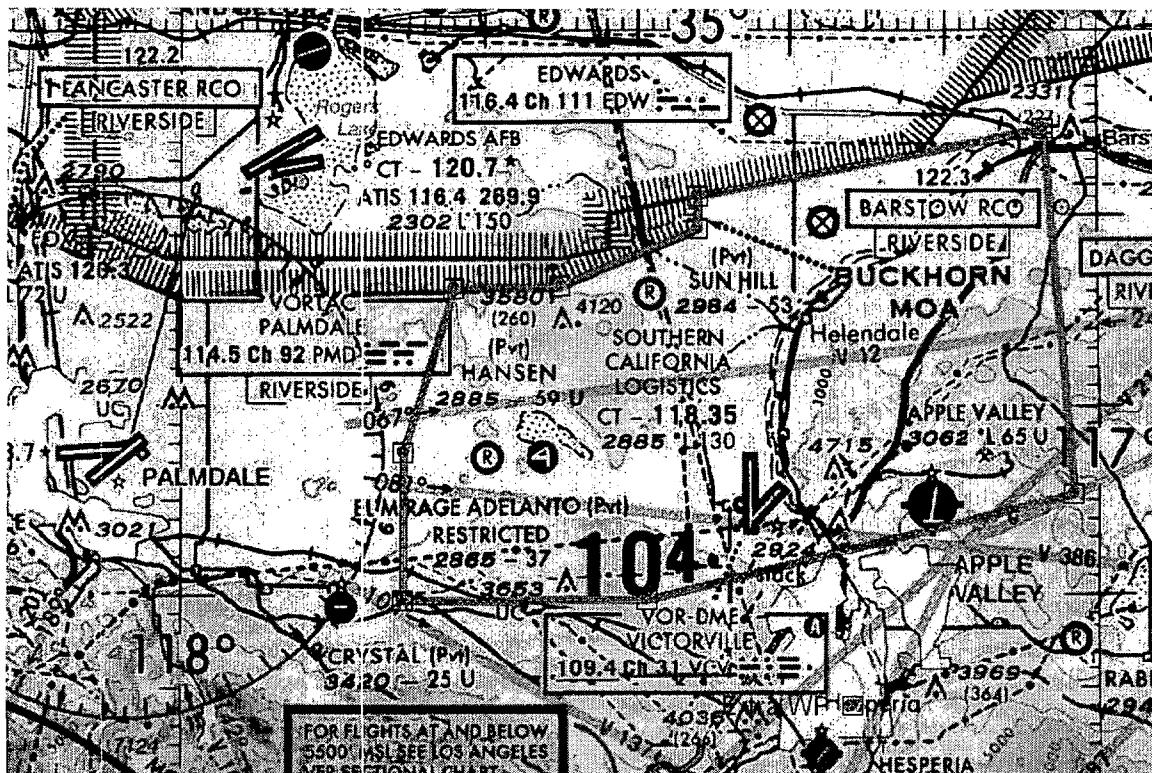


Figure 1: Primary Containment Area (WAC Depiction)

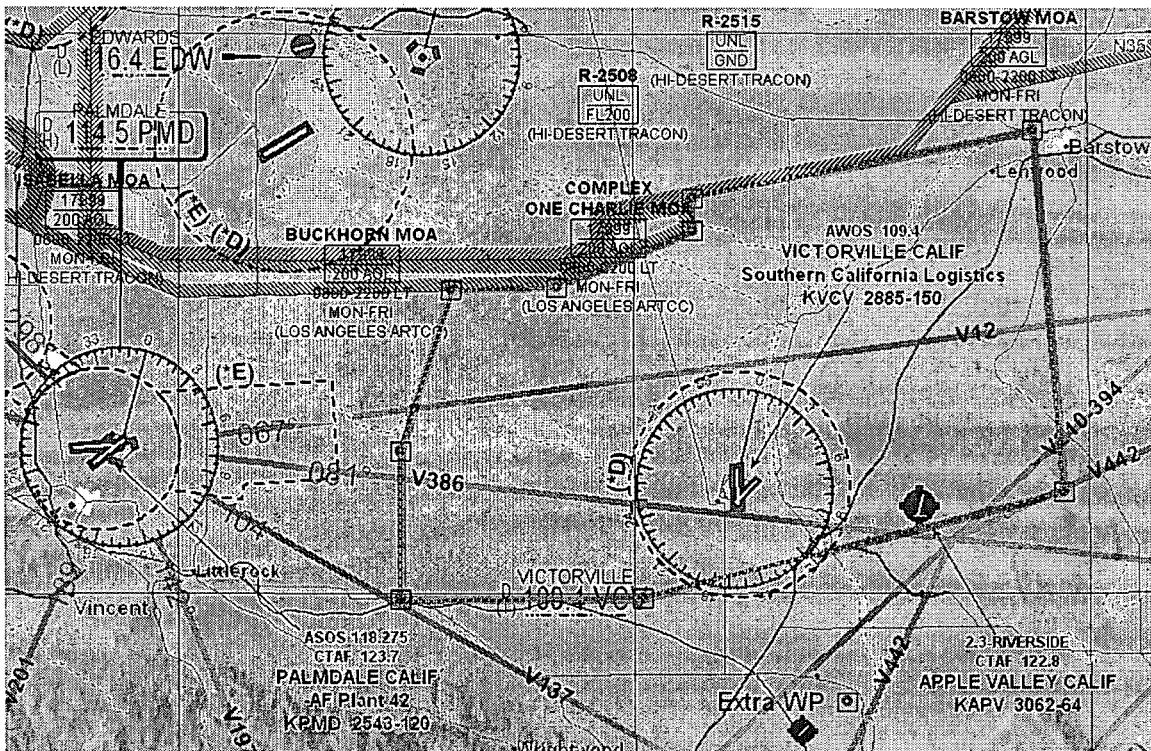


Figure 2: Primary Containment Area

3.2.4 During UAS operation, two-way radio communication will be maintained between the UAS pilot/operator, chase plane and the appropriate FAA Air Traffic controlling facility. If communication cannot be maintained, by the UAS pilot/operator, chase plane or the appropriate FAA Air Traffic controlling facility, the UAS will expeditiously return to its base of operations and the flight will be terminated.

3.2.5 The UAS and the chase plane will have position and strobe lights on at all times. If any of these systems on either aircraft are inoperative the flight will be cancelled.

3.2.6 GA-ASI, and/or its representatives, are responsible at all times for collision avoidance with non-participating aircraft and the safety of persons or property on the surface with respect to the ERMP.

3.2.7 From sunrise to sunset (daytime), UAS operations may be conducted from the surface to 6,000 feet mean sea level (MSL), with the ERMP operator and a ground observer, who is in direct communication with the UAS operator, assisting in see-and-avoid duties for the UAS. The ground observer is responsible for maintaining visual contact with the aircraft at all times. At no time will the aircraft exceed 3.0 NM from the ground observer.

3.2.8 Operations above 13,000 feet MSL and/or outside the area described in paragraph 3.2.3 shall require an Instrument Flight Rules (IFR) flight plan and a chase aircraft in direct communication with Los Angeles Air Route Traffic Control Center (ZLA) or the appropriate controlling Center. ERMP flights may be conducted in Class A airspace (above 18,000 feet) without a chase plane and will require an IFR flight plan and direct communication between the ERMP operator and ZLA. When operating on a flight plan and under positive control, all ATC instructions shall be adhered to.

3.2.9 ERMP UAS operations may be conducted in VFR conditions in the Barstow, Isabella, Owens, Saline, and Panamint Military Operating Areas (MOA) with permission of the controlling agencies. The ERMP shall be accompanied by a chase plane when operating in MOAs

3.2.10 High Desert TRACON may provide traffic advisories to the chase aircraft during the UAS operation. In the event that controller workload prohibits this service, or two-way radio communications cannot be maintained, the ERMP operation shall be canceled.

3.2.11 GA-ASI will coordinate each UAS flight with High Desert TRACON 2 hours prior to the operation for transponder codes. The chase aircraft transponder will be on standby while in formation with the ERMP, but shall be turned on when separated. The ERMP transponder will be turned on and set to the ATC assigned code any time the ERMP is operating. In the case of a transponder failure on either the ERMP or the chase aircraft, the ERMP operation shall be terminated.

3.2.12 GA-ASI will contact Riverside Automated Flight Service Station (AFSS) at (800) 826-0030, in sufficient time to issue a Notice to Airmen (NOTAM) at least twenty-four hours prior to each event. GA-ASI will provide Riverside Automated Flight Service Station (RAL AFSS), at a minimum, the location, altitude, and times of operation. The center of the operating area may be described using either the Palmdale VOR (PMD) or Victorville VOR (VCV). GA-ASI will provide RAL AFSS any additional information requested for NOTAM purposes.

3.2.13 All ERMP pilots will hold, as a minimum, a valid FAA commercial pilot certificate with an instrument rating. The ERMP operator shall control only one UAS at any one time. The chase aircraft or ground observer will perform see-and avoid duties for the UAS.

3.2.14 All ERMP operations will be performed under the established GA-ASI inspection and maintenance procedures.

3.2.15 ERMP operations will be performed under our established quality management system for engineering, production, delivery, servicing, and ground

and flight operations in a manner that is continually surveyed and acceptable in accordance with established GA-ASI procedures.

3.2.16 Research and development flight test will be conducted according to our company Flight Readiness Review process which establishes that the ERMP is flight ready and suitable for safe operation.

3.2.17 ERMP will not perform any aerobatic maneuvers and will adhere to the minimum fuel requirements contained in 14CFR 91.151.

3.2.18 Program Summary

Estimated Flight Hours	300 hours
Estimated Number of Flights	90 flights
Duration	1 year

Table 1: Program Summary

4. AIRCRAFT CONFIGURATION

4.1 Aircraft Configuration - The GA-ASI ERMP aircraft is a variant of Predator A aircraft with components from the Predator B aircraft. It is similar in size and configuration to the Predator A aircraft but incorporates the redundant flight control avionics from the Predator B; both of which are in production for the U.S. Air Force (USAF). The ERMP is a growth evolution of the proven Predator aircraft, using common avionics, structural and mechanical systems while incorporating an advanced Thielert Heavy Fuel Engine. Since 1995, Predator aircraft have logged over 230,000 flight hours, of which over more than half have been during combat area deployments to the Balkans, Southwest Asia, and the Middle East where Predator operates in support of U.S. and NATO forces. Based upon the success of the program, the U.S. Department of Defense transitioned the Predator program to full rate production in August 1997, marking it as the first Advanced Concept Technology Demonstration (ACTD) program to be designated an Acquisition Category II Program.

ERMP Capabilities:

- EO/IR payload
- SAR all-weather payload
- Satellite communications
- Line of sight communications
- GPS and INS
- Over 24 hr on-station at 400 nm
- Operations to 31,000 MSL
- 450 lb internal payload capacity
- Captive inert wing mounted stores

- 4.1.1 The ERMP has a 56.4 ft. wingspan
- 4.1.2 The ERMP is 27.9 ft. long
- 4.1.3 The aircraft is powered by a turbocharged 1.7L Thielert 135 HP Heavy Fuel Engine.
- 4.1.4 The ERMP max GTOW is 3,600 lbs.
- 4.1.5 The aircraft can be configured for Reconnaissance, Surveillance and Target Acquisition (RSTA) and external payload missions. When configured for RSTA missions, the ERMP aircraft carries 600 lbs. of fuel. In the external payload configuration, the IERMP carries 345 lbs. of fuel.
- 4.1.6 In the RSTA configuration the payload capacity is 450 lbs. The external payload configuration carries 150 lbs. payload on the fuselage centerline plus an additional 515 lbs. on the wing weapons pylons.
- 4.1.7 The service ceilings for the RSTA and external payload configurations are 29,500 ft. and 25,000 ft. respectively at their takeoff weights.
- 4.1.8 The maximum total endurance for the RSTA ERMP configuration is 36 hours. When in external payload configuration, endurance drops to 15 hours.
- 4.1.9 The maximum airspeed of the ERMP aircraft with full mission fuel is 150 and 134 KTAS respectively for the RSTA and external payload configurations. The maximum speed is achieved at 15,000 ft. regardless of the configuration and weight.
- 4.1.10 The Data Link Subsystem is the same communications systems as currently operational with the Predator A and Predator B aircraft. The aircraft can be controlled from the ground via two modes of communication: Line-of-Sight (LOS) or SATCOM Beyond Line-of-sight (BLOS). LOS operates in the C-band while SATCOM operates in the Ku-band.
- 4.1.11 ERMP's reliable, redundant avionics draw components from the Predator B program to provide the most reliable avionics structure with the highest non-developmental item (NDI) content. ERMP features dedicated computers for flight, payloads and weapons processing, separating software to ease re-certifications and decrease throughputs. Our flight control systems are mature with over 100,000 flight hours on multiple platforms giving us an experience base unmatched for Medium Altitude Long Endurance (MALE) aircraft. Our existing autopilots include point navigation, hold loiter, flight plan, knobs, Automatic Takeoff and Landing System (ATLS) and engineering test/manual control modes which build on basic stability augmentation control loops. ERMP navigation

sensors provide reliable, high accuracy velocity, heading, and position data for vehicle flight and navigation functions as well as supporting the precision mission requirements of surveillance and location. ERMP's primary navigation suite consists of a flight certified Honeywell H764 EGI (Embedded GPS INS with Trimble Force 5 Precise Positioning System GPS) backed up by two Athena INS/GPS units. The latter two are based on HG1700 laser IMU sensors coupled with a GPS that also has differential mode accuracy and SAASM capability.

4.2 Aircraft three-view drawing:

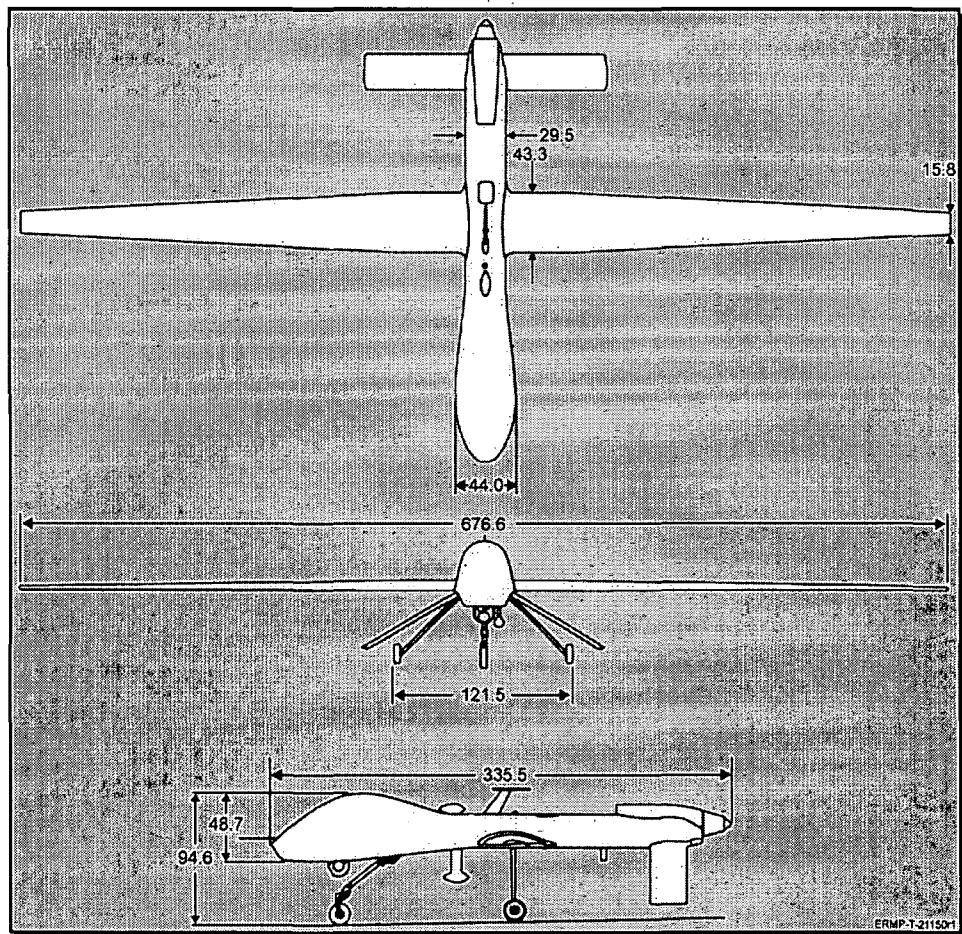


Figure 3: ERMP Three-view Drawing

5. INSPECTION AND MAINTENANCE (14 CFR § 91.7)

5.1 All ERMP operations will be performed under the established GA-ASI inspection and maintenance procedures. Manuals will be provided in January 2007

6. PILOT QUALIFICATION (14 CFR § 61.3, 61.5)

6.1 Pilot qualification and flight review will be conducted IAW company procedure ASI-00009. All GA-ASI pilots are required to possess at least an FAA commercial certified pilot certificate with instrument rating. All GA-ASI pilots are required to successfully complete a formal company training program for the company aircraft type (ex. Predator, Predator B, ERMP, etc.) Company training incorporates class instruction, simulation, and flight training. All GA-ASI pilots are required to maintain flight proficiency, complete annual oral and written exams, and pass an annual flight evaluation. All GA-ASI pilots are required to maintain instrument currency in manned aircraft.

7. AIRCRAFT MARKING (14 CFR Part 45)

7.1 A registration number has been processed by the FAA Oklahoma City. The aircraft will be marked IAW Part 45.

8. ATC TRANSPONDER AND ALTITUDE REPORTING SYSTEM EQUIPMENT AND USE (14 CFR § 91.215)

8.1 The ERMP unmanned aircraft system will have an altitude reporting transponder capable of Mode S.

9. METHOD FOR SEE AND AVOID (14 CFR § 91.113a)

9.1 The pilot of the ERMP UAS is responsible for seeing and avoiding other traffic using real time video image displays which come from any one of, a) Either of the two fixed forward looking nose cameras, configured as two 30°FOV EO or one EO plus a Mid range FLIR (40°FOV), or b) the EO / IR turreted surveillance camera system (3 sensors with Field Of Regard covering full 360° of lower hemisphere plus above horizon capability for the forward viewing perspective in the region of +10°). To assist the UAS pilot, an observer either in a chase plane or on the ground will be used. These observers will maintain real time audio communications with the UAS pilot.

The task of the observer is to provide the pilot of the UAS with advisory information to enable the pilot to maneuver the UAS clear of any other traffic. At no time shall visual observers conduct their duties more than three nautical miles laterally or 3000 feet vertically from the UA. When a chase aircraft is utilized, it must maintain a reasonable proximity, and shall position itself relative to the UAS in such a manner to reduce the hazard of collision per § 91.111.

9.3 UAS pilots and observers shall perform crew duties for only one UAS at a time. Observer's duties shall be dedicated to the task of observation only, concurrent duty as a pilot is not authorized. Ground observers are trained in Right-of-Way Rules (14 CFR 91.113) and Operating near Other Aircraft (14 CFR

91.111) per the "A & P Training Program / Flight Operations Support Training" document.

10. SAFETY RISK MANAGEMENT

10.1 The FAA required safety checklist was submitted in May 2006.

11. SYSTEM CONFIGURATION

The overall ERMP system, including ground equipment, is show in Figure 2. ERMP aircraft is designed with the following systems:

11.1 Redundant Control Module (RCM):

- o RCM processor and Input/Output (I/O) technology, implemented within its triplex architecture, using three independent Motorola 565 based RCM flight computers.
- o Dual independent voter circuits, each connected to all three processors and a dedicated UARB network.
- o An independent power supply for each flight computer.
- o The RCM also accommodates video switch circuitry to support the dual redundant nose cameras plus the video paths from the optional EO/IR payload sensor suite.

11.2 Control Surface Servos:

- o The ERMP aircraft has the following suite of flight control surfaces
 - Four aileron panels, 2 on each wing.
 - Two flap panels, one per wing.
 - Two full flying tail panels
 - One full flying ventral rudder panel.
- o Each panel is actuated by dc brushed servo actuator mechanisms used on Predator B and Predator A airframes. The servo driver and associated electronics are those used on Predator B, each employing a microcontroller that incorporates failure detection and circumvention functions. These servo actuator electronics are commanded via dedicated dual redundant serial buses that convey control surface commands from the triplex redundant flight computer RCM.
- o Dedicated microprocessor failure detection in each servo assembly that defaults to pre-programmed state, when detected, to minimized aerodynamic effects (disconnect input drive, set to failure mitigating position).

11.3 Datalink:

- o The datalink is maintained by either the baseline redundant C-band Line-Of-Sight (LOS) system or a Ku-band Satellite Communication (SATCOM) system optionally installed with the C band equipment.

- Ground Datalink Terminals (GDT) are comprised of a C-band datalink terminal and a Ku-band datalink terminal. Maximum range of the C-band GDT is about 130 nautical miles (nm) and Ku-band GDT is limited only by satellite coverage.

11.4 Communication:

- The ERMP system may utilize the optionally installed ARC-210 VHF/UHF communications radio. This equipment is mounted in the aircraft and is controlled from the GCS by on screen commands with six selectable frequency bands available as shown in the table below. The operator(s) can communicate with Air Traffic Control (ATC) when using the 108MHz thru 117.975 MHz AM band.

Frequency	Band
30.000 to 87.975	FM
108.000 to 117.975	AM
118.000 to 135.975	AM
136.000 to 155.975	AM / FM
156.000 to 173.975	FM
225.000 to 399.975	AM / FM

Table 2: Radio Frequencies and Bands

11.5 Aircraft Electrical Power:

- The ERMP has a dual +28Vdc electrical bus system derived from two general aviation alternators. They are rated at 170 amps each. Both alternators are individually driven from the Thielert diesel propulsion. Alternator power conditioning and distribution is derived from current USAF Predator MQ-1 implementation including dual power paths and payload power control and fault isolation. In addition, each power path is backed up by a battery with sufficient margin to maintain system operation for safe recovery and landing after loss of both alternators. All critical performance and health monitoring parameters are conveyed to the GCS to facilitate pilot caution and warning.

The ERMP Ground Based Equipment is designed with the following systems:

11.6 Navigation Sensor Suite:

- The navigation sensor suite employs three INS/GPS units. This consists of a single precision Honeywell EGI 764 INS/GPS unit plus two Athena INS/GPS units. The latter two are based on HG1700 laser IMU sensors coupled with GPS with differential mode accuracy and SAASM capability. The resulting three strings of sensor data are used

for flight control and stabilization together with the navigation duties. The triple string of data is conveyed to the triple redundant RCM and voted and selected using techniques implemented and flying on Altair and Predator B aircraft.

11.7 Ground Control Station:

- GA-ASI Ground Control Station (GCS) is common to all GA-ASI aircraft. Aircraft type differences are accommodated through matching of tail number and system configuration ID resident in aircraft and GCS S/W. This approach circumvents a GCS controlling an aircraft with a different setup (i.e. piston engine controls versus turbine). Multiple GCSs at both GA-ASI Gray Butte and El Mirage, California flight test center facilities provide multiple GCS backup options.
- The ERMP aircraft will be flown from a fixed GCS which is backed up by an emergency generator in case of a power failure.

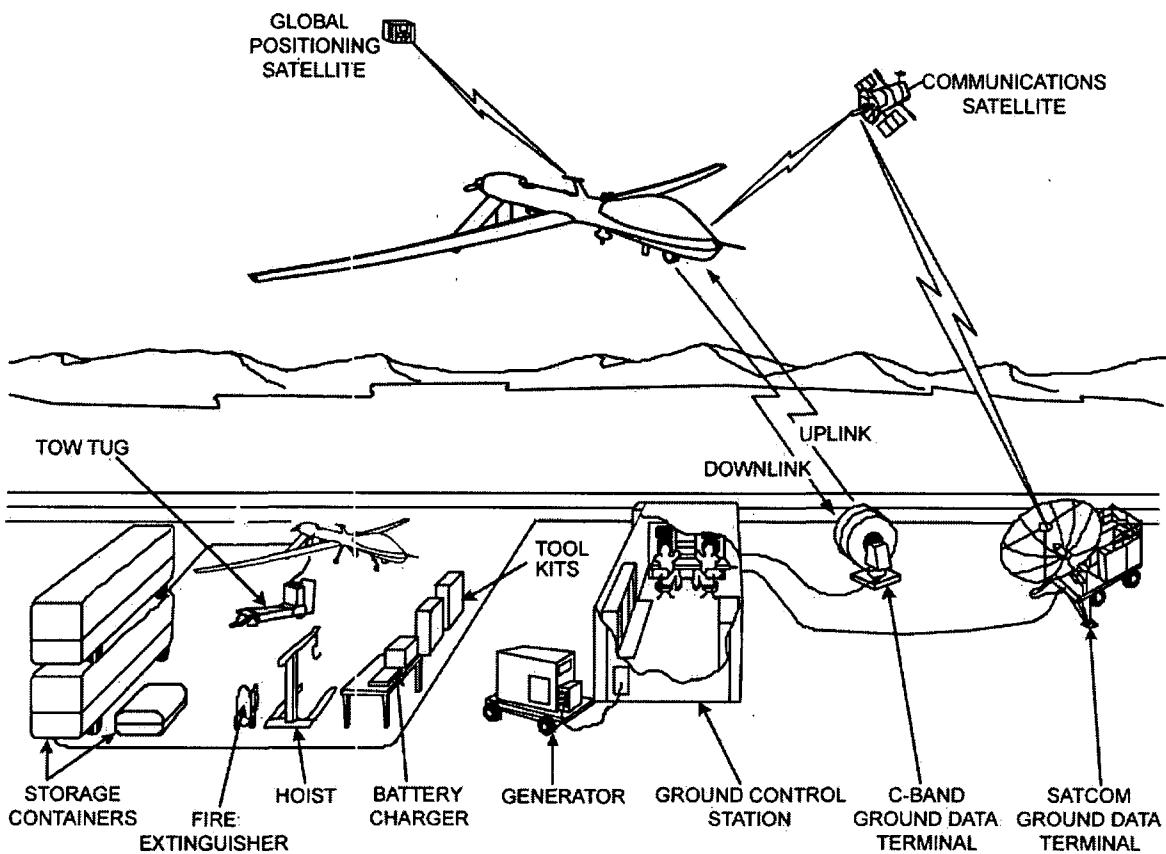


Figure 4: ERMP System Overview

12. SYSTEM SAFETY - FLIGHT TERMINATION AND LOST LINK

12.1 The ERMP system redundancy maintains a high level of UAS operational integrity permitting continued control and safe piloting of the UAS throughout its mission, from launch through to recovery. This is the principal means of maintaining containment of operations within the agreed locations and altitudes of the Experimental Certification limitations. To address failures that cannot be assured to maintain containment, there are several Flight Termination modes embedded within the ERMP system to address these.

12.2 Pilot controlled descent and touch down: This may be used with engine out when beyond glide range of either the El Mirage or Grey Butte recovery airfields. The pilot flies to the touch down point using the same Emergency Mission established rules but with the benefit of man-in-the-loop control to minimize hazard exposure to people on the ground, thereby enabling safety containment. The hazard circumvented is touch down into an unplanned location with risk of harming people on the ground. For loss of alternator power and flight within the confines defined herein, there is sufficient battery capacity to enable

continued powering of core systems to effect return and landing at either El Mirage or Gray Butte.

12.3 Lost Link Mission: This contains features to prevent aircraft flyaway by flying a predetermined course to reestablish link. This function is the same as used across all GA-ASI platforms and is implemented within the triplex flight computer therefore having the same integrity as the flight critical elements.

12.4 Prevention of fly away at loss of the triple flight computer function is accomplished by the tail servos moving full trailing edge up and engine controls set to shut down. This is effected by the servo electronics programmed to move to preprogrammed default positions after loss of valid flight computer commands. The engine control electronics similarly default to engine out at loss of flight computer propulsion commands. To assist in voice communications capability for these emergency cases, backup radios are contained in the GCS. If the backup radios cannot establish communications, the crew utilizes a land/cell/sat phone and calls the appropriate controlling agency.

13. COMMAND AND CONTROL

13.1 The datalink is maintained by either a redundant C-band Line-Of-Sight (LOS) system or an optionally installed Ku-band Satellite Communication (SATCOM) system. These systems are common to all GA-ASI UAS operations.

13.2 Pilot control commands and returned telemetry are conveyed via these data link systems with the same data format used on both the C Band LOS and the KuSATCOM systems.

13.3 Ground Datalink Terminals (GDT) are comprised of a C-band datalink terminal and a Ku-band datalink terminal. Maximum range of the C-band GDT is about 130 nautical miles (nm) and Ku-band GDT is limited only by satellite coverage. The ERMP aircraft datalink items use the same antennas and RF front ends as Predator A and B. The baseband data stream encode/decode processing is also the same, but implemented in a full redundant manner similar to Predator B that includes upper and lower antenna assemblies. In comparison, the Predator A aircraft has single string encode/decode electronics. In the case of datalink interruption, the aircraft uses an automatic pre-programmed "lost link" flight pattern that allows the aircraft to recover the link, and to automatically return to base (RTB) for a normal landing. If link cannot be established, the lost link function moves to the a specific Emergency Mission phase and detours aircraft flight to a pre-determined safe set down area with final actions programmed to minimize descent energy and resultant debris field.

14. CONTROL STATIONS

14.1 Ground Control Station - The aircraft is flown by a pilot from a Ground Control Station (GCS) that can be located in a building or in a portable shelter. The GCS incorporates workstations that enable the pilots to control the aircraft, navigate, and monitor aircraft systems. These workstations are termed PSO for Pilot Sensor Operator. Two PSO stations are incorporated in each GCS. At any given time one PSO is always assigned to the pilot mode and the other to the sensor operator. Each PSO can serve as a Pilot station or Sensor Operator station with the mode controlled by a centrally mounted switch under direction of the pilot. The switch essentially toggles the modes of the PSO stations permitting pilot control to be transferred in cases of PSO malfunction and thereby providing control redundancy for the pilot. The design of the PSO is primarily based on serving the pilot function. When in the Sensor Operator mode the same controls are functionally re-configured for sensor operation as are the displays.

Both PSO stations are connected to the data links. In relation to data link operation, pilot and sensor commands are combined for uplink and the same downlink information sent to both PSO racks. The operating mode of the PSO and the selected display configuration then determines what downlink information is displayed.

The aircraft is primarily operated real time by the pilot (pilot-in-the-loop) and is also capable of flying pre-programmed missions.. The aircraft can be flown line-of-sight out to approximately 130nmi of the GCS utilizing the C-Band data link or beyond line-of-sight with the Ku-Satcom data link. The pilot maintains contact with ATC via two GCS installed ARC-210 radios or through the chase aircraft. Direct ATC communications are also possible when the aircraft has an optionally installed ARC210 VHF/UHF radio. In this mode, Pilot headset audio (Microphone and ear phones) is conveyed to the aircraft radio via the data link.

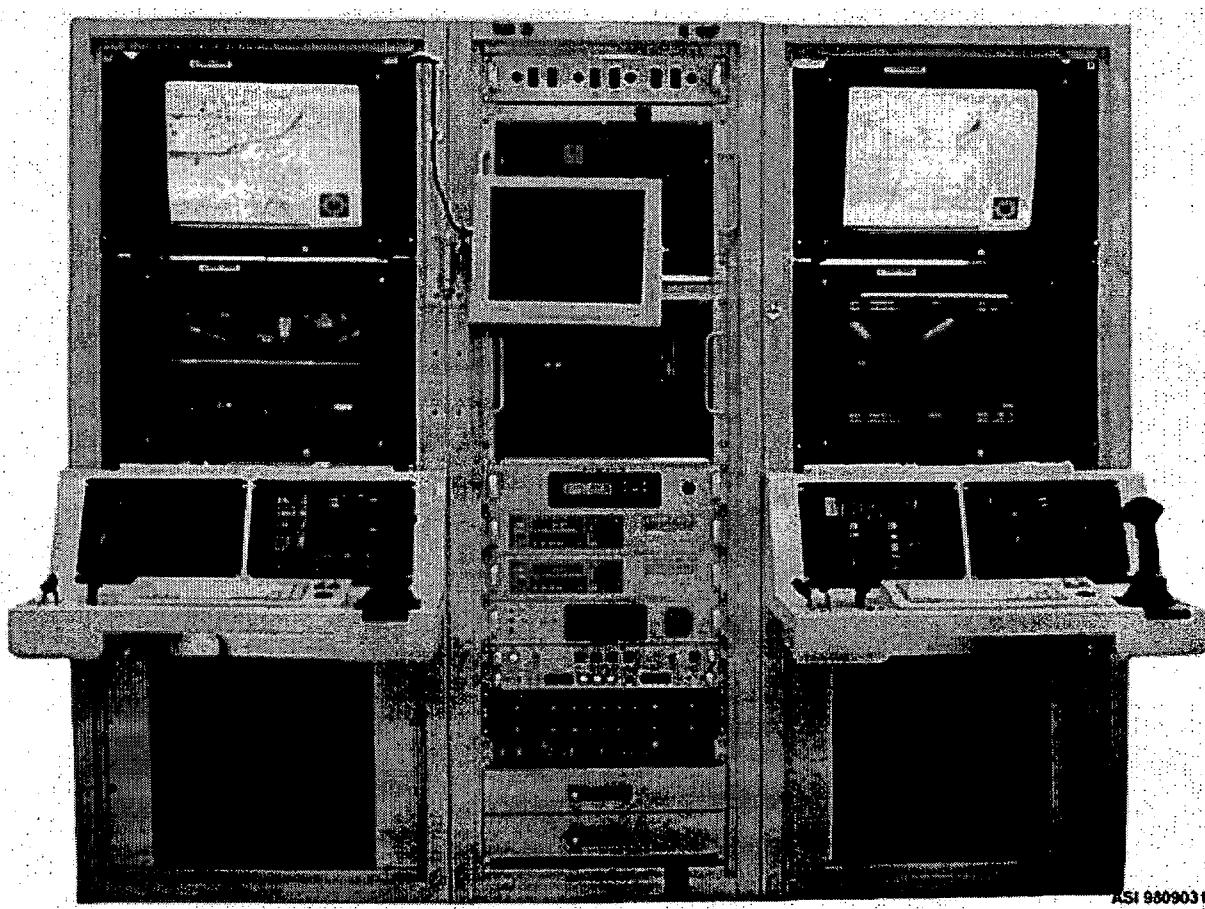


Figure 5: Ground Control Station

14.2 Pilot Configuration - To provide the pilot's control function, the display and control features of the PSO station are described in the following:

14.2.1 Upper Video Screen – The Upper Video Screen displays a moving symbol of the aircraft over a map. This enables the pilot to view and modify the aircraft's flight plan.

14.2.2 Lower Video Screen – The Lower Video Screen displays imagery capture by a fixed field-of-view nose camera with 30 degree field of view. The nose camera view is the background or "underlay" of information presented on the Lower Video Screen. The overlay to the nose camera video is a HUD style format that shows primary aircraft system operational and performance parameters.. The principle information displayed in the HUD is: Angle of Attack, Pitch Angle, Air Speed, Vertical Speed, Engine Performance Parameters, Horizon, distance from the Ground Data Terminal, Gear Position, Current Barometer Setting, Heading, Yaw Rate, and Center of the Field of View. The Lower Video Screen thereby supports the pilot's responsibilities of: Primary Aircraft System Monitoring, and Performing Takeoffs and Landings.

14.2.3 Headset / Microphone Audio – The Headset with Microphone operates in the GCS is the same as in manned aircraft. The Headset with Microphone enables the Pilot to communicate with his/her Flight Crew, Air Traffic Control, and other aircraft pilots. In addition to aerial communications, the Headset with Microphone also enables the Pilot to communicate with Ground Crew who have similar Headsets with Microphones out on the Flight Line.

14.2.4 Flight Controls – The pilot flight controls are through a console mounted joystick for pitch and roll commands and rudder pedals with embedded foot brake controls. Rudder pedal action jointly controls the rudders and nose wheel steering with gear down and the brake function permits differential control. In addition, the console also locates control levers for engine power and flap control. Buttons are also located on throttle and joystick controls for related mode selection and ancillary controls. Landing gear retraction and deployment are activated through a joystick button and trigger switch interlocked with airspeed limits to prevent inadvertent ground retraction.

14.2.5 Keyboard – The Keyboard is used in conjunction with the flight controls for overall aircraft system control. Information entered via the keyboard may include Waypoints for Flight Path Navigation, Radio Frequencies for Communication, etc. In addition to entering information, the keyboard is also used to select and configure aircraft systems as required.

14.2.6 Aircraft Control Switch – The Aircraft Control Switch determines which of the two Flight Crew Positions has active control over the aircraft. The switch is located within ready access of the pilot either on individual PSOs or on the central equipment rack centered between the PSO stations. The Aircraft Control Switch enables the Pilot to select the PSO to perform all the vehicle control and monitoring activities.

14.2.7 Cumulative System – The integrated system (including information obtained from the Payload Operator and System Engineer) provides the Pilot with Situational Awareness. Situational Awareness supports all the Pilot's responsibilities: Pilotage, Communications, Takeoffs, Landings, and Primary Aircraft System Monitoring and Configuration.

15. CONTROL FREQUENCIES

15.1 The ERMP aircraft is controlled by either a C-band line-of-sight (LOS) or a Ku-band over-the-horizon Satellite Communications (SATCOM) datalink system. Control signals are processed by the PSO workstation and sent to either the C-band Ground Data Terminal (GDT) or the Ku-band SATCOM GDT for transmission to the aircraft – see Figure 2 for overview. The following table is a list of operating frequencies used:

GA-ASI Frequency Allocation Table		
C-Band LOS		
	Uplink 1/2	Downlink 1/2
1	5800 MHz	5300 MHz
	5850 MHz	5350 MHz
2	5820 MHz	5440 MHz
	5675 MHz	5335 MHz
3	5750 MHz	5380 MHz
	5660 MHz	5315 MHz
4	5700 MHz	5460 MHz
	5725 MHz	5365 MHz
5	5775 MHz	5280 MHz
	5830 MHz	5420 MHz
6	5810 MHz	5400 MHz
	5710 MHz	5260 MHz
Ku-Band SATCOM		
DF 2	CL / Ground	CL / UAS
	14146.5	11846.5
	RL/ Ground	RL / UAS
	11807.750	14107.750
DF 5	CL / Ground	CL / UAS
	14163.375	11863.375
	RL/ Ground	RL / UAS
	11869.000	14169.000

Table 3: C-Band and Ku-Band Operating Frequencies

16. Software

16.1 Updates - GA-ASI uses the waterfall model of software development – where software is developed in distinct, sequential steps. The development process may revert back to an earlier step to address change recommendations. A Software Change Request (SCR) is a formal request for new or revised software.

16.2 Development Process -The ERMP UAS System Program will be developed and produced using standard software engineering practices as defined in Institute of Electrical and Electronics Engineers/Electronic Industries Alliance (IEEE/EIA) Std 12207. The process is governed by the contents of this document and executed through Integrated Product Team (IPT) and a series of

design reviews and verification procedures. Much of the ERMP UAS system consists of existing Line Replaceable Units (LRU). As a result, the engineering effort will focus upon integrating new components and Government Furnished Equipment (GFE) into a legacy architecture in order to meet the performance requirements. The process will generally follow the standard waterfall methodology, to best satisfy ERMP Technical Requirements Document (TRD) requirements. The ERMP software code is based upon the proven Predator B software code.

16.3 Requirements - the software requirements development process consists of software requirements analysis, followed by documentation of software requirements in Software Requirements Specification (SRS) and Interface Requirement Specification (IRS). The process formulates and documents software functional and performance requirements, interface requirements and constraints; responds to requests for clarification, correction, or waivers/deviations; analyzes impacts; develops and revises the SRSs and IRSs if needed; and manages the requirements baseline and change process. The activities to develop the SRS are described as follows:

16.3.1 Use the Dynamic Object Oriented Requirements System (DOORS™) requirements database to describe the system requirements allocated to software to the level of detail needed to describe the systems software capabilities.

16.3.2 Perform a Software System Safety analysis to identify any additional software safety requirements.

16.3.3 Produce a draft of the SRS. Perform preliminary analysis of document.

16.3.4 Provide a traceability matrix between the SRS and the System/Segment Design Document (SSDD) and other applicable requirements documents.

16.3.5 Distribute the SRS for review.

16.3.6 Perform a requirements walk-through to ensure that the SRS meets the system requirements allocated to software.

16.3.7 The approved SRS is placed under configuration control and base-lined.

16.3.8 A customer review is held and the document is updated as appropriate.

16.3.9 Initial SCRs are generated from the approved SRSs.

16.4 System Qualification Testing - A System Qualification Test Plan (SQTP) is generated to plan and perform system software/hardware qualification testing. System Qualification Test Procedures are generated documenting the test steps

to be run to verify each requirement in the SSDD for that system. A requirements traceability cross reference matrix is provided, using the project wide requirements traceability database or DOORS™, to document the test(s) that satisfy each SSDD requirement. A Qualification Test Report (QTR) is generated for each system to be qualified, documenting the results of testing. The Test and Evaluation IPT (T&E IPT) is responsible for generating the appropriate test documentation. The T&E IPT Lead is responsible for conduct of the tests.

16.4.1 The ERMP program uses a series of builds to integrate the various components of the system. This allows progress to be measured and demonstrated as more capabilities are added to the baselines. The testing processes described in this document, up through System Qualification Testing (SQT), is used on each of the components as they are approved for delivery and test. The Production Prove-Out Test Plans and Report (PPOTPR) as defined in the Contractor Test Plan (CTP) are used to verify/validate the entire systems performance. This is accomplished by conducting tests, demonstrations and inspections and producing analysis with which to determine a systems compliance with specifications.

16.4.2 The PPOTPR is the T&E IPT's approved and witnessed series of tests that demonstrated compliance with the requirements set forth in the ERMP Project SSDD. System Qualification is conducted in accordance with GA-ASI Engineering Instruction I-049. Each procedure addresses entry criteria, principal responsible party, activities, exit criteria, and applicable metrics.

16.4.3 Independence in System Qualification Testing - System Qualification Testing is accomplished by the T&E IPT. The System Test and Qualification group is organizationally independent of the software development team.

16.4.4 Testing on the Target Computer System - The ERMP target system is used for all system qualification testing. In the event that commercial equivalents are the only system available, System Engineering certifies that the commercial equivalent system has the same functional characteristics as the Target Computer System. If the systems are not equivalent, then the follow-on tests include a test sample of those procedures that could not be run on the Target System.

16.4.5 Preparing for System Qualification Testing - ERMP System Qualification Testing is conducted at the most appropriate test facility. Test facilities can include contractor, government or independent facilities. Following SQTP plan approval the program then precedes to a series of verification and validation Tests. Demonstration Tests (DTs) following the conclusion of qualification activities, a customer approved and witnessed Acceptance Test Plan (ATP) is performed, demonstrating the operational performance capabilities of the system.

- o Plan System Qualification Tests

- o Develop Test Cases
- o Develop Test Procedures
- o Prepare Test Environment
- o Assure Readiness for System Qualification Testing
- o Conduct Test Readiness Review
- o Dry Run System Qualification
- o Perform System Qualification Testing (Execute Tests and Collect Data)
- o Revision and Retesting as needed
- o Analyze and Record System Qualification Test Results
- o Analyze and Evaluate Results
- o Report Test Results

All ERMP test plans and reports are placed under configuration control and submitted to the customer for review and approval.

16.5 Release Management - Release activities are a primary function of the Software Configuration Management (SCM) Specialists. The SCM Portal is the official release repository.

16.5.1 CSC Release Process - To release a Computer Software Component (CSC), SCM will:

- o Move release files from the incoming directory to the SCM Internal code repository at O:\Scm\Internal\CSCI Code
- o TITLE: Software Configuration Management El. NO: EI-079 Page 4 of 10 Form 0012 Last Modified: 04/06/05
- o Use the SCR management tool to verify that at least one SCR is tagged with the program name and Computer Software Configuration Item (CSCI) Version, authorizing each baseline change
- o Use the SCR management tool to verify that each SCR is at the Ready for Release state. In particular, verify the listed information in the following tabs:
 - o Legacy Data
 - o Development Branch
 - o Hardware Impact
 - o CSCI/Release Info
 - o Either a checksum value or a file size value has been entered.
 - o The parent value is correct.
 - o The release date is not earlier than the date of the email notifying SCM that the CSC is ready for release.
 - o All remaining fields are complete.
- o Move all related SCRs to the Closed – Released state
- o Create release notes from the closed SCRs, check them into source control and submit for peer review
- o Once approved, post Release Notes to the SCM Portal
- o Post binary files and release notes to the release files repository on \\rex\products

- Send email notification to submitting Software Management Team (SMT) that the CSC is released, with a cc: to Zz_ASI SCM
- Update the CSC Releases tally on the SCM Portal Reports tab
- Update the SCM Release Status board with the release date and time
- The SCM Specialist shall inform the SMT member of any discrepancies.

16.5.2 A Software Release Authorization form authorizes the external release of a version of system software for a particular program (e.g., USAF Predator, Italy Predator, etc.). This form must have GA-ASI and Customer Authorization (marked PASS or PASS WITH CHANGES), as well as the endorsement of the Director of Flight Operations, before an Software Version Description (SVD) can be generated. If either the ASI or Customer representative finds any Category I anomalies, the authorization shall be denied by checking the FAIL option on the form and listing the anomalies on page 2 of the form. If the PASS WITH CHANGES option is checked, all Category II anomalies must be listed on the form.

16.6 Software Quality Assurance - The following paragraphs describe Software Quality Assurance (SQA) activities performed to ensure that software development processes follow the requirements of the ISO 9001 Quality System Procedures, Engineering Department Instructions, and this ERMP Software Development Plan.

16.6.1 Software Quality Assurance Evaluations - SQA performs verification activities such as audit and surveillance of Software Department personnel on a regular basis. The audit and surveillance activities verify the following:

- Software development processes are completed and documented per applicable Engineering Instructions, including requirements verifications, design verifications, test plan verifications, code verifications, etc.
- Software engineering personnel are trained and knowledgeable of applicable procedures
- Designated metrics are collected and used by software management
- Customer identified software problems (bugs) are investigated and appropriate corrective actions taken
- Validation activities of software changes by flight operations personnel at the El Mirage and Gray Butte facilities are recorded and provided to Software Department personnel

16.6.2 If SQA audit and surveillance activities identify a significant or repetitive violation of requirements related to the software processes or products, the results are documented on an Audit Finding and Corrective Action form and a formal corrective action plan is developed. The responsible manager identifies the cause of the problem and appropriate near term and root cause corrective action, and the corrective action plan is approved by SQA. In addition, SQA monitors implementation and verifies that the corrective action was effective. The Audit Finding and Corrective Action results are available on line.

16.6.3 SQA prepares and maintains records of each SQA activity. These records are maintained for the life of the contract.

16.6.4 Independence in Software Quality Assurance - SQA audit and surveillance activities are led by personnel from the GA-ASI Quality Programs organization, which is organizationally independent of the Software Department. The Director of Quality Programs reports directly to the GA-ASI Aircraft Systems Group (ASG) President. Personnel from the Software Department may be added to an audit and surveillance team on a periodic basis for their training.



U.S. Department
of Transportation

**Federal Aviation
Administration**

Los Angeles Manufacturing Inspection District Office
3960 Paramount Blvd.
Lakewood, CA 90712

EXPERIMENTAL - OPERATING LIMITATIONS
RESEARCH AND DEVELOPMENT, CREW TRAINING, or MARKET SURVEY

REGISTERED OWNER NAME: GENERAL ATOMICS AERONAUTICAL SYSTEMS, INC. (GA-ASI)	AIRCRAFT BUILDER: GENERAL ATOMICS AERONAUTICAL SYSTEMS
REGISTERED OWNER ADDRESS: 16761 VIA DEL CAMPO CT SAN DIEGO, CA 92127	YEAR MANUFACTURED: 2006
AIRCRAFT DESCRIPTION: FIXED WING, ERMP UNMANNED AIRCRAFT	AIRCRAFT SERIAL NUMBER: WA 001
AIRCRAFT REGISTRATION: N20321	AIRCRAFT MODEL DESIGNATION: ERMP UWA-97000-1
	ENGINE MODEL: Thielert Centurion 1.7 modified
	PROPELLER MODEL: Muhlbauer MT-6

The following conditions and limitations apply to all General Atomics Aeronautical Systems Inc (GA-ASI) Extended Range/Multi- Purpose (ERMP) flight operations while operating in the National Airspace System (NAS):

1. GENERAL

a. For the purposes of the Special Airworthiness Certificate and Operating Limitations, the ERMP Unmanned Aircraft System (UAS), owned and operated by GA-ASI, is considered to be an integrated system. The integrated system is composed of the ERMP aircraft, S/N: WA 001, unmanned aircraft (UA) pilot, UA control station(s) (fixed or mobile), telemetry, navigation and communications equipment. This equipment includes ground, air, and space based equipment that is used for control of the ERMP UA. The UAS also includes equipment on the ground and in the air that is used for communication with the chase aircraft and Air Traffic Control.



b. Unless otherwise specified in this document, the Pilot-in-Command (PIC) and GA-ASI shall comply with all applicable sections and parts of 14 CFR including, but not limited to, parts 61 and 91. Alternative methods of compliance with specific regulations shall be annotated in this document as required.

c. No person may operate this UAS for other than the purpose of Research and Development (R&D), crew training, or market surveys, to accomplish the flight operation outlined in GA-ASI Program Letter dated December 21, 2006, which describes compliance with §21.193(d), and has been made available to the pilot in command of the UAS. In addition, this UAS must be operated in accordance with applicable air traffic and general operating rules of part 91, and all additional limitations herein prescribed under the provisions of §91.319(e).

d. The PIC must determine that the UAS is in a condition for safe operation, and in a configuration appropriate for the intended purpose of the flight.

e. No person may operate this UA to carry property for compensation or hire.

f. This UA must be marked with its U.S. Registration number in accordance with 14 CFR part 45.

g. This UA must display the word "EXPERIMENTAL" in accordance with §45.23(b).

h. Prior to conducting the initial ERMP flight operations, General Atomics Aeronautical Systems, Inc. must forward a copy of the ERMP Program Letter, Special Airworthiness Certificate, and Operating Limitations to the FAA Western Service Area, Debra Trindle, Air Traffic Representative, at debra.trindle@faa.gov or via fax at 623-856-8339 (cover sheet required), addressed to FAA ATREP.

i. Section 47.45 requires that the FAA Aircraft Registry must be notified within 30 days of any change in the aircraft registrant's address. Such notification is to be made by submitting Form 8050-1 to AFS-750 in Oklahoma City, Oklahoma.

2. PROGRAM LETTER

The GA-ASI's ERMP Program Letter, dated December 21, 2006 was used as a basis for the determining the operating limitations prescribed in this document. All flight operations must be conducted in accordance with the provisions contained in these operating limitations.

3. INITIAL FLIGHT TESTING

Flight operations shall be divided into 2 phases.

a. The following restrictions apply to Phase I flight-testing:

- 1) Shall be conducted within visual line of sight of the pilot/observer,
- 2) Shall be within a 5 statute mile radius of the airport for the first 10 flight hours, after which the radius may be expanded to 10 statute miles,

- 3) Shall be conducted at an altitude no greater than 7500 ft. MSL,
- 4) The aircraft may not be controlled by satellite communications,
- 5) Fuel load shall be limited to 5 hours flight time plus reserve required by 14 CFR 91.151.

Initial Phase I flight-testing shall be completed upon accumulation of 25 flight hours. Following satisfactory completion of Phase I flight testing, the operations manager or chief pilot must certify in the records that the aircraft has been shown to comply with § 91.319(b). Compliance with § 91.319(b) must be recorded in the aircraft records with the following, or a similarly worded, statement:

"I certify that the prescribed flight test hours have been completed and the aircraft is controllable throughout its normal range of speeds and throughout all maneuvers to be executed, has no hazardous operating characteristics or design features, and is safe for operation. The following aircraft operating data has been demonstrated during the flight testing: speeds Vso _____, Vx _____, and Vy _____, and the weight _____ and CG location _____ at which they were obtained."

b. Phase 2 flight-testing authorizes flight in the primary containment area and the Edwards and Irwin ranges with the following limitations:

- 1) Fuel shall be limited to 530 lbs,
- 2) Shall not exceed an altitude of 13,000 ft MSL when operating in the PCA and 35,000 ft MSL when operating in restricted airspace.

4. AUTHORIZED FLIGHT TEST OPERATIONS AREA

a. The base of operations for the ERMP UAS shall be El Mirage , Adelanto, CA, and Gray Butte Field, Palmdale CA.

b. The flight test operations area authorized for the UA is depicted graphically below. This area shall be referred to as the "Primary Containment Area." General Atomics may be permitted to operate within restricted airspace per authorization of the using agency. Under these circumstances, should the UA venture beyond the boundaries of restricted airspace (e.g., spill out), provisions of this experimental certificate shall apply, including authorization to only operate within the boundaries of the Primary Containment Area. In these circumstances, General Atomics is responsible for notifying the FAA of the breach of any operations. The ERMP UAS is required to be operated in accordance with the conditions defined in these limitations and in compliance with FAA rules and regulations while operating in restricted airspace.

c. Flight operations in the Primary Containment Area shall be conducted below 13,000 feet MSL within the boundaries defined below. Flight operations shall not be conducted within the

Victorville (KVCV) Class D airspace. When operating in a terminal environment, the UA must have line of sight communications.

d. Beginning at:

lat. 34°29'47"N, long. 117°45'23"W, to
lat. 34°37'41"N, long. 117°45'23"W, to
lat. 34°46'21"N, long. 117°42'00"W, to
lat. 34°46'30"N, long. 117°35'03"W, to
lat. 34°49'30"N, long. 117°26'03"W, to
lat. 34°51'17"N, long. 117°26'03"W, to
lat. 34°54'50"N, long. 117°03'30"W, to
lat. 34°35'22"N, long. 117°01'38"W, to
lat. 34°29'50"N, long. 117°29'25"W, thence to the point of beginning.

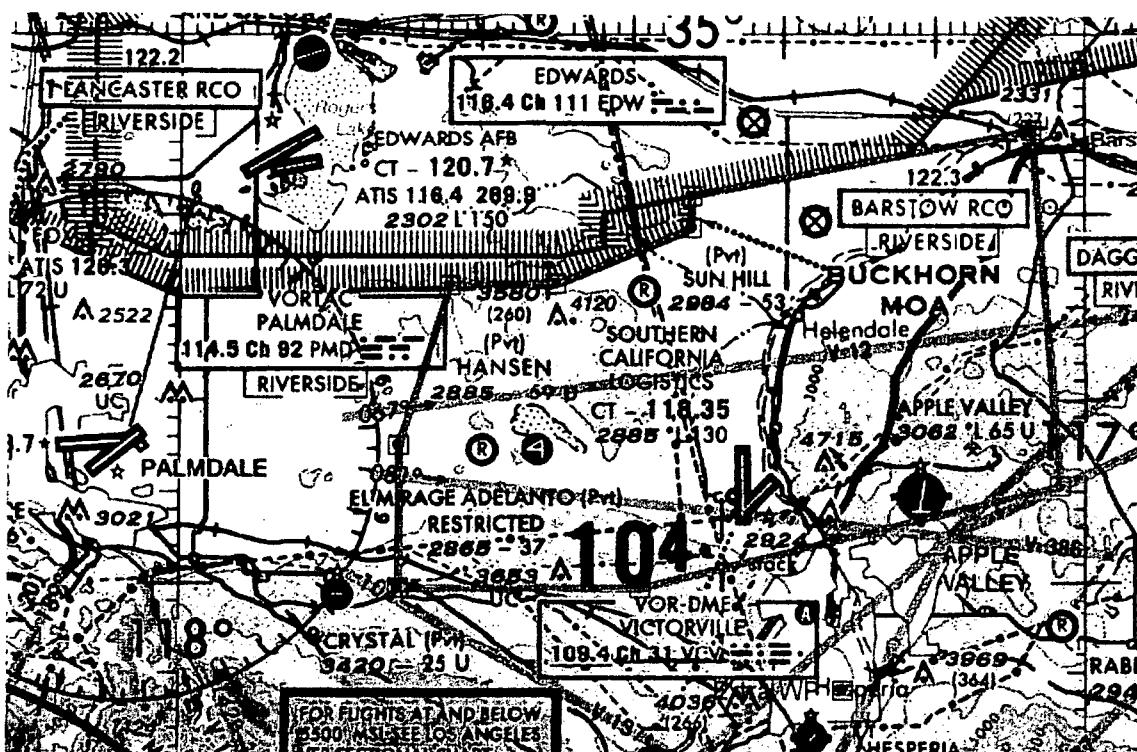


Figure 1: Primary Containment Area (WAC Depiction)

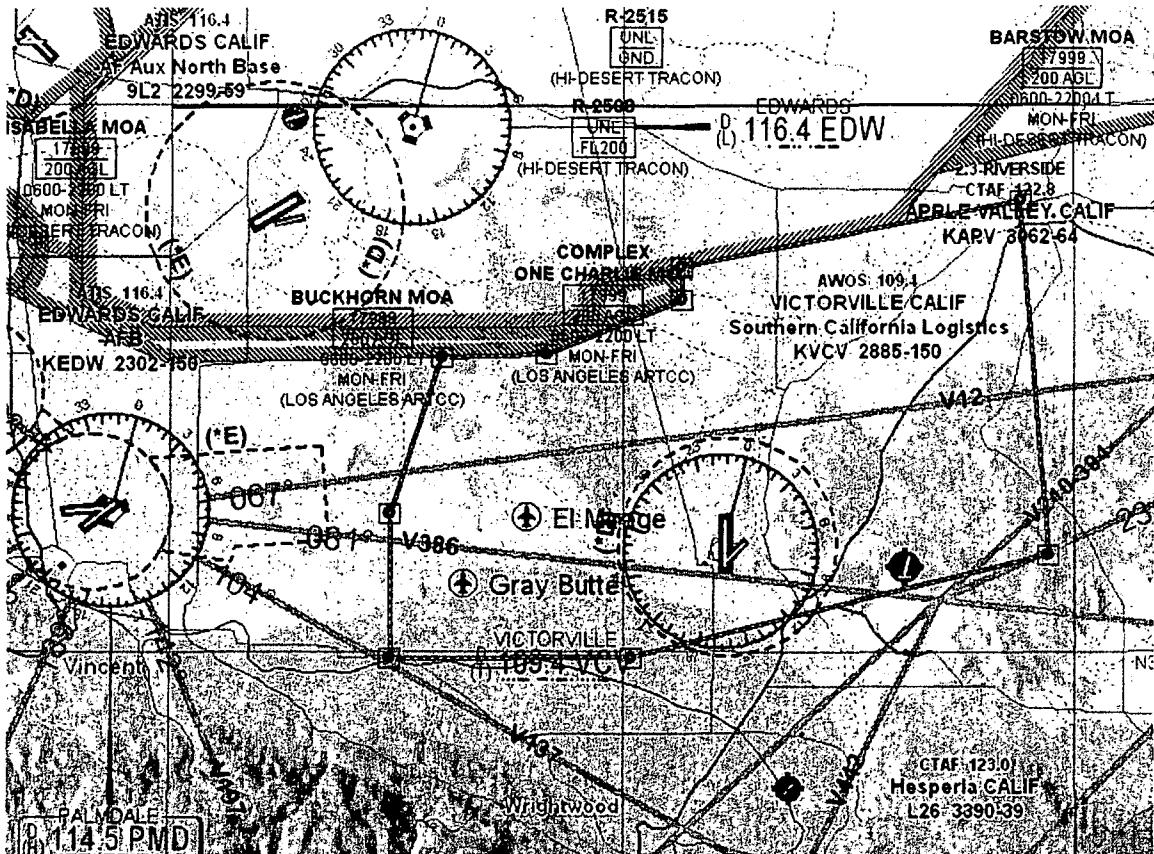


Figure 2: Primary Containment Area

e. The PIC shall ensure that all UA flight operations remain within the lateral and vertical boundaries of the Primary Containment Area or any SUA approved by the using agency. Furthermore, the PIC shall take into account all factors that may affect the capability of remaining within the containment areas. This includes, but is not limited to, considerations for wind, gross weight, and glide distances.

f. Incident / Accident Reporting. Any incident / accident and any flight operation that transgresses the lateral or vertical boundaries of the Primary Containment Areas or any SUA shall be reported to the FAA, Manager AIR-160, as soon as practicable, but always within 24 hours. Accidents shall be reported to the National Transportation Safety Board per the instructions contained on the NTSB website: www.ntsb.gov. The AIR-160 Manager can be reached at telephone number 202-385-4636, or by fax at 202-385-4651. The point of contact is Mr. Doug Davis. The report may be provided by either phone, or e-mail to kenneth.d.davis@faa.gov. Further flight operations shall not be conducted until the incident / accident is reviewed by ATO, AFS, and AIR-160, and authorization to resume operations is received.

g. If the review reveals issues with the operating limitations, the FAA may revise/amend the operating limitations as part of the authorization to resume operations.

5. UA PILOT AND OBSERVER

- a. All flight operations conducted in the Primary Containment Area shall have an observer to perform traffic avoidance and visual observation to fulfill the "see and avoid" requirement of §91.113.
- b. UA pilots shall hold, at a minimum, an FAA Private Pilot certificate, Instrument Rating, Airplane category with Single or Multiengine class ratings, and have it in their possession.
- c. All observers shall:
 - 1) Hold at a minimum, an FAA Private Pilot certificate, or
 - 2) Successfully completed specific observer training acceptable to the FAA.
- d. UA pilots shall maintain currency in manned airplanes per 14 CFR §61.57.
- e. UA pilots shall maintain currency in unmanned aircraft in accordance with GA-ASI company procedures.
- f. UA pilots shall have a Flight Review in manned aircraft every 24 calendar months per 14 CFR §61.56.
- g. UA pilots shall have a Flight Review in unmanned aircraft every 24 calendar months in accordance with GA-ASI company procedures.
- h. Pilots and Observers shall have successfully completed applicable manufacturer training for high level systems and operational understanding of the UAS.
- i. Pilots and observers must have in their possession a valid third class (or higher) airman medical certificate that has been issued under 14 CFR part 67.
- j. A PIC must be designated at all times and be responsible for the safety of the UAS and persons and property along the UA flight path. This includes, but is not limited to, collision avoidance and the safety of persons and property in the air and on the ground. The PIC shall avoid densely populated areas (14 CFR § 91.319) and exercise increased vigilance when operating within published airway boundaries.
- k. UAS pilots and observers shall perform crew duties for only one UA at a time. When the observer is located in a chase aircraft, the observer's duties shall be dedicated to the task of observation only, concurrent duty as pilot is not authorized.
- l. All observers must be thoroughly trained, familiar with, and possess, operational experience with the equipment being utilized for observation and detection of other aircraft for collision avoidance purposes as outlined in GA-ASI program letter.
- m. Visual Observer Responsibilities: The task of the observer is to provide the pilot of the UA with instructions to maneuver the UA clear of any potential collision with other traffic. Visual observer duties require continuous visual contact with the UA at all times in such a manner as to be able to discern UA attitude and trajectory. At no time shall the visual observer permit the UA to operate beyond line-of-sight necessary to ensure that maneuvering

information can be reliably determined. At no time shall visual observers conduct their duties more than two nautical miles laterally or 3000 feet vertically from the UA. Observers must maintain continuous visual contact with the UA. When a chase aircraft is utilized, it must maintain a reasonable proximity, and shall position itself relative to the UA in such a manner to reduce the hazard of collision per §91.111.

6. COMMUNICATIONS

- a.** Each UAS Flight operation must be coordinated by telephone with High Desert TRACON and receive a transponder code at (661) 277-3843, 1 hour prior to the start of the flight operation.
- b.** Upon initial contact with ATC, the PIC must indicate the experimental nature in accordance with 14 CFR § 91.319.
- c.** The PIC must maintain two-way communication with ATC. If a chase aircraft is utilized, the chase aircraft pilot shall maintain two-way communications with ATC and with the PIC.
- d.** The PIC and observer(s) must maintain two-way communications with each other during all operations.
- e.** If communications cannot be maintained between the PIC, chase aircraft pilot, observer(s) and appropriate ATC facility, the UA will squawk 7600-transponder code, expeditiously return to its base of operations while remaining within the containment area, and conclude the flight operation.
- f.** Spectrum used for operation and control of the UAS must be approved by the FCC or other appropriate government oversight agency prior to operations being conducted.

7. FLIGHT CONDITIONS

- a.** All flight operations must be conducted under visual flight rules (VFR) in visual meteorological conditions (VMC), including cloud clearance minimums as specified in 14 CFR § 91.155. Flight operations under instrument flight rules (IFR) or in instrument meteorological conditions (IMC) are not authorized. Flight operations shall not be conducted under the Special VFR criteria specified in 14 CFR § 91.157, nor shall flight operations be conducted when flight visibility is less than three statute miles.
- b.** All flight operations within the Primary Containment Area as specified in Section 4d shall be conducted during daylight hours only.
- c.** The UA is prohibited from aerobatic flight, that is, an intentional maneuver involving an abrupt change in the UA's attitude, an abnormal acceleration, or other flight action not necessary for normal flight (§91.303).
- d.** Flight operations must not involve carrying hazardous material or the dropping of any objects or external stores.



- e. The UA and chase aircraft shall be equipped with operable navigation, position, and strobe/anti-collision lights. Strobe/anti-collision lights shall be illuminated at all times.
- f. The UA must operate an altitude encoding transponder (Mode S) in accordance with applicable guidelines and procedures.
- g. The chase aircraft transponder must be on standby while performing chase operation flight with the UA. In the event of UA transponder failure, the chase aircraft will contact ATC and assume transponder operations.
- h. In the event of transponder failure on either the UA or the chase aircraft, the UA must conclude all flight operations and expeditiously return to its base of operations within the prescribed limitations of this authorization.
- i. GA-ASI must request Notice to Airman (NOTAM) issuance through the appropriate Automated Flight Service Station twenty-four (24) hours prior to plan operation.

8. FLIGHT TERMINATION & LOST LINK PROCEDURES

- a. In accordance with GA-ASI Program Letter, dated December 21, 2006 flight operations must be discontinued at any point when the approved flight containment area(s) is breached and/or the control of the UA is questionable. If it is determined that the UA is still under control of the PIC, the UA shall return to base (RTB).
- b. In the event of lost link, the UA must provide a means of automatic recovery that ensures airborne operations are predictable and that the UA remains within the primary containment area. The UAS PIC will immediately notify ATC, chase aircraft/observer of the loss of link condition and what the expected UA response will be.
- c. During Phase I flight-testing General Atomics has agreed to implement an imbedded flight termination function that is autonomously executed within 1 hour of entering into lost link flight mode. During Phase 2 flight-testing General Atomics has agreed to implement an imbedded flight termination function that is autonomously executed within 1 hour of reaching final lost link loiter point.

9. MAINTENANCE

- a. This UAS must not be operated unless it is inspected and maintained in accordance with the General Atomics, CAPITAL EXTENDED RANGE/MULTI PURPOSE MAINTENANCE AND INSPECTION PROGRAM, ASI 01783 for the UA, and ASI 01727 for the GCS. Each inspection must be recorded in the UAS maintenance records.
- b. No person may operate this UAS unless within the preceding 12 calendar months it has had a condition inspection performed in accordance with, FAA-accepted, CAPITAL EXTENDED RANGE/MULTI PURPOSE MAINTENANCE AND INSPECTION PROGRAM, ASI 01783 for the UA, and ASI 01727 for the GCS, and was found to be in a condition for safe

operation. This inspection will be recorded in the UAS maintenance records.

c. Only those individuals authorized by General Atomics, and acceptable to the FAA, may perform inspections required by these operating limitations.

d. Inspections of the UAS must be recorded in the UAS maintenance records showing the following, or a similarly worded, statement: "I certify that this UAS has been inspected on [insert date] in accordance with the scope and detail of the CAPITAL EXTENDED RANGE/MULTI PURPOSE MAINTENANCE AND INSPECTION PROGRAM, ASI 01783 for the UA, and ASI 01727 for the GCS, and was found to be in a condition for safe operation." The entry will include the UAS's total time-in-service, and the name and signature of the person performing the inspection.

e. UAS instruments and equipment installed must be inspected and maintained in accordance with the requirements of the CAPITAL EXTENDED RANGE/MULTI PURPOSE MAINTENANCE AND INSPECTION PROGRAM, ASI 01783 for the UA, and ASI 01727 for the GCS. Any maintenance or inspection of this equipment must be recorded in the UAS maintenance records.

f. No person may operate this UAS unless the altimeter system and transponder have been tested within the preceding 24 calendar months in accordance with 14 CFR §91.411 and §91.413 respectively. These inspections will be recorded in the UA maintenance records.

10. EQUIPAGE

The UA shall be equipped with two-way communications equipment allowing communications between the UAS pilot, chase aircraft, and ATC facilities.

11. INFORMATION REPORTING

General Atomics shall provide the following information to Kenneth.d.Davis@faa.gov on a monthly basis.

- a. Number of flights conducted under this certificate.
- b. Pilot duty time per flight.
- c. Unusual equipment malfunctions (hardware or software), if any.
- d. Deviations from ATC instructions.
- e. Unintended entry into lost link flight mode that results in a course change.

12. REVISIONS

- a. The experimental certificate, General Atomics FAA-accepted program letter, and operating limitations cannot be reissued, renewed, or revised without application being made to the Los Angeles MIDO, and coordinated with the Production and Airworthiness Division, AIR-200. AIR-200 will be responsible for headquarters internal coordination with the Aircraft

Certification Service, Flight Standards Service, Air Traffic, Office of Chief Council, and Office of Rulemaking.

- b.** No Certificate of Authorization or Waiver may be issued in association with this Experimental Certificate unless coordinated with the Los Angeles MIDO and the Production and Airworthiness Division, AIR-200.
- c.** The provisions and limitations annotated in this operational approval may be amended or cancelled at any time as deemed necessary by the FAA.
- d.** All revisions to GA-ASI FAA-accepted CAPITAL EXTENDED RANGE/MULTI PURPOSE MAINTENANCE AND INSPECTION PROGRAM, ASI 01783 for the UA, and ASI 01727 for the GCS must be reviewed and accepted by the Van Nuys Flight Standards District Office.

13. UA MODIFICATIONS

- a.** All software and system changes will be documented as part of the normal maintenance procedures and be available for inspection. All software and system changes shall be inspected and approved per GA's maintenance procedures. All software changes to the aircraft and GCS are categorized as major changes, and shall be provided in summary form at the time they are incorporated.
- b.** All major modifications, whether performed under the experimental certificate or COA, that could potentially effect the safe operation of the system, shall be documented and shall be provided to the FAA prior to operating the aircraft under this certificate. Major modifications incorporated under COA need only be provided if the aircraft is flown under COA during the effective period of the experimental certificate.
- c.** All information requested shall be provided to AIR-200.



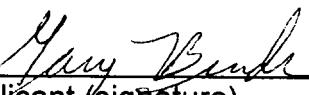
Robert J. Winn
Los Angeles Manufacturing Inspection District Office
3960 Paramount Blvd.
Lakewood, CA 90712

Date: May 10, 2007

I certify that I have read and understand the operating limitations, and conditions, that are a part of the Special Airworthiness Certificate, FAA Form 8130-7 issued on May 10, 2007 for the purpose of Research and Development, Crew Training, or Market Survey.

This Airworthiness Certificate is issued for General Atomics UA model ERMP UWA-97000-1, serial number WA001, registration number N20321. This certification expires on May 9, 2008.

Note: If the so stated limitations or conditions cannot be complied with, ERMP flight operations shall be terminated.



Applicant (signature)

Date: May 10, 2007

Name (Printed): Gary Bender

Title: Director Flight Operations

Company: General Atomics ASI

WEIGHT AND BALANCE CHART

TAIL NUMBER SW-001

